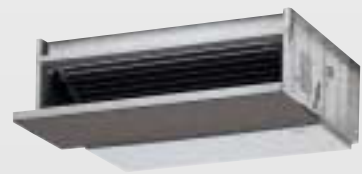


Fan coil units series

FR - FC - FCO - FCR

Models **100÷800**



ACCORRONI[®]
E. G.

Technical Information

FR - FC - FCO - FCR 100÷800

FAN COIL UNITS

SERIES FR - FC - FCO - FCR

Models 100-200-300-400-600-800

Technical details

This manual is in three sections:

- **SECTION A - GENERAL INFORMATION**

Contains descriptions and technical details of the equipment.

- **SECTION B - INSTALLATION DETAILS FOR THE INSTALLER**

Contains all the instructions and notes necessary for installing equipment.

- **SECTION C - USER INSTRUCTION AND MAINTENANCE MANUAL**

This section is for the user's use and contains all the necessary information for the correct usage and periodic checks on the equipment.

Important notes for using the manual:

- 1 - To ensure correct and safe use of the appliance, the planner, installer, user and maintenance technician respectively must scrupulously observe everything contained in this manual. The manual must be held for reference and must be kept with the appliance for the length of its working life, including in the case of its transfer to a third party.
- 2 - The word **WARNING!** indicates information of great importance which must be strictly observed. Non-compliance with this instruction could result in damage to the appliance and/or danger in using it. Paragraphs written in **bold** contain important information, advice or instructions which must be carefully considered.
- 3 - Accorroni S.r.l. is not responsible for any damage caused by the improper use of the appliance, by any use different from the one designated or by any incomplete or approximate conformation to the instructions in this manual.
- 4 - The technical data, physical appearance, components and accessories shown in this manual may be subject to change. Accorroni S.r.l. reserves the right to make any changes at any time that it considers necessary for improving the quality of the product.
- 5 - References to laws, norms and technical regulations in the manual are for information purposes only and are valid at the date of printing shown on the last page. Accorroni S.r.l. has no responsibility to third parties arising out of implementation of new provisions or changes to existing ones.
- 6 - Accorroni S.r.l. is responsible for ensuring that the product conforms to the production laws, regulations and norms in force at the time of putting the product on the market. Knowledge and observance of the laws and regulations appropriate to the plant design, installation, use and maintenance of the appliance are the exclusive responsibility of the planner, installer and user respectively.

INDEX

SECTION A - GENERAL INFORMATION

	page
1. PRINCIPAL CHARACTERISTICS	3
1.1 Appliance classification	3
1.2 EC conformity	3
1.3 Functional description	3
1.4 Technical characteristics	3
1.5 Pack contents	4
1.6 Optional accessories	4

1.7	Measurements	6
1.8	Components	8
1.9	Technical data tables	13
1.10	Standard 3 row battery heat output diagrams	14
1.11	Standard 3 row battery charge loss for water at 10°C diagrams	17
1.12	Electrical Diagrams	20

SECTION B - INSTALLATION INSTRUCTIONS

2.	<i>WARNINGS</i>	22
2.1	Installer qualifications	22
2.2	Preliminary information	22
2.3	Transport and handling	22
2.4	Data control	22
2.5	Instruction use	22
3.	<i>INSTALLATION</i>	23
3.1	Positioning	23
3.2	Installation procedures	23
4.	<i>STARTING UP</i>	25
4.1	Checks	25
4.2	Starting up	25
5.	<i>REPLACING COMPONENTS</i>	26
5.1	Fan group	26
5.2	Heat exchanger	26

SECTION C - USER INSTRUCTION AND MAINTENANCE MANUAL

6.	<i>WARNINGS</i>	27
6.1	Instructions and guarantee	27
6.2	Recommendations - improper use	27
7.	<i>STARTING UP</i>	28
7.1	Checks	28
7.2	Turning on	28
7.3	Turning off	28
8.	<i>MAINTENANCE</i>	28
8.1	Normal user maintenance	28
8.2	Regular checks	29
8.3	Trouble-shooting	29

APPENDICES

	EC conformity declaration	30
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SECTION A - GENERAL INFORMATION

1. PRINCIPAL CHARACTERISTICS

1.1 APPLIANCE CLASSIFICATION

The F-FR-FC-FCR fan heaters are defined as "air treatment terminals for winter and summer air conditioning".

1.2 EC CONFORMITY - CERTIFICATION

The EC symbol guarantees that the appliance conforms to EEC machinery directive EEC/98/37, low tension directive EEC/73/23, electromagnetic directive EEC/89/336 and any subsequent amendments. The appliances have the Eurovent certificates and the symbol guarantees conformity to the data declared.



1.3 FUNCTIONAL DESCRIPTION

The fan heaters consist essentially of a system of heat exchange between the liquid circulating inside the exchanger (hot or cold water) and the air flow controlled by a fan system. The outside air is taken in by the fans and sent out to the heat exchanger which heats the air in winter or cools it in summer. During the summer cycle, depending on the heat-hygrometric conditions of the outside air, water condensation is formed and collected in the appropriate container so that it can be disposed of.

The treated air is emitted through the appliance grille or through the outlet units built in to the plant.

The appliances come as standard with fittings for 2 pipes. For 4-pipe plants with two independent circuits, there is an optional supplementary heat exchange system. The fan heater has a remote control (supplied separately). A choice can be made from various available versions.

1.4 ASSEMBLY CHARACTERISTICS

1.4.1 Available versions

The fan heaters are available in 6 different sizes and in the following versions:

FR - Vertical with casing

For wall installation, under windows or in any other free space or position which offers technical or functional advantages.

FC - Horizontal with casing

For direct ceiling installation in all situations where there is not enough free wall space.

FCO - Vertical built in

Supplied without any casing for invisible installation in custom made panels and connection to intake and output grilles and outlets.

FCR - Horizontal built in

As above, supplied without casing for invisible installation in panelling or dropped ceiling.

For the F and FR versions, there is also a G variation with frontal air intake grille complete with filter.

1.4.2 Component characteristics

The support frame is made in zinc plate of an appropriate thickness and comes with fixings already in place for attaching the appliance to a wall or ceiling with hooks and brackets as well as mountings for the various components and accessories. Internal surfaces are insulated with closed-cell fireproof material.

The heat exchange system is for a 2-pipe plant and consists of 3 rows of copper pipes with continuous aluminium fins. The aluminium fin pack is welded to the pipe surface by mechanical expansion of the pipes themselves. The frame is in stainless steel and the collectors in brass alloy come with female attaching flanges of G 1/2" and manual air bleed valves of G1/8". **The fan coil unit come as standard with plumbing attachments on the left side.**

The fan system consists of one (sizes 100 and 200) or two centrifugal double-aspiration fans. They have a high air capacity and low noise level with blades and screws in plastic. The system is electronically balanced before and after being mounted in the unit.

The single-phase 230 V electric motors have a permanently installed capacitor and heat protection is incorporated. Use of the autotransformer means that 6 speeds can be accessed. Three are standard and can be selected from the control panel.

The motor is directly coupled to the fan(s) and mounted on a flexible support and the system is assembled to include a tray for collection of condensation. Electrical connection with the control panel is by rapid polarised insert.

The air filter is made of synthetic fibre and mounted on a metal frame with a mesh net on both sides. It can be extracted using the unblocking flanges and a tool. In the FC and FCR versions with casing, the air filter is supplied on request.

The cover (F and FR versions) is made of zinc plate and pre-painted in colour RAL 9002. It is protected by transparent cling film to prevent damage during transportation and installation. G version are also available with a cover complete with frontal intake grille in plastic and air filter.

The air output grille comes in modular form in heat-resistant plastic in colour RAL 7032. The right and left terminals include the site for the control panel (F version) and the necessary access flaps which have an exclusive trip closing mechanism. In locations where access to the control panel is not allowed (public places, schools etc.) the access points can be closed using the appropriate screw with head cover. The F version fan heaters come as standard with space for the control panel on the right side.

The control panel is not included in the standard fan heater pack because there are various different models both for mounting on the appliance and for remote mounting on a wall:

- **Basic control panel 1**
consists of an on-off switch for starting and turning off the fan heater, a manual 3-speed selector and an 'on' indicator light.

- **Basic control panel 2**
consists of a manual selector for OFF/SUMMER/WINTER, a 3-speed manual selector and an 'on' indicator light.

The control panel is set up for connection of a thermostat (supplied separately) which means that in the heating mode the fan is activated only when the temperature of the water in the heat exchanger exceeds a pre-set limit.

- **Electronic thermostat 1**

consists of an on-off switch for starting and turning off the fan heater, a 3-speed manual selector, and 'on' indicator light and a manual SUMMER/WINTER selector.

The thermostat ensures automatic accurate temperature control in heating and conditioning plants with 2 pipes. The thermostat regulator switch enables temperatures of from 5°C to 35°C to be programmed. The fan heater goes off automatically when the desired temperature is reached.

- **Electronic thermostat 2**

consists of a manual OFF/SUMMER/WINTER switch, a 3-speed manual selector and an 'on' indicator light.

The thermostat includes all the functions of electronic thermostat 1 and in addition can be used with a 2-electrovalve control in 4-pipe plants or 1 electrical resistance electrovalve in 2-pipe plants. A minimum temperature reading can also be included using an appropriate connection (for use in winter cycle).

- **Microprocessor thermostat**

Includes all the functions of the electronic thermostats and in addition has automatic fan speed selection and summer/winter switch. A 2 electrovalve control is possible in 4-pipe plants and 1 electrical resistance electrovalve in 2-pipe plants. A minimum temperature reading can also be included (for winter use) and a device for activating the energy saving function.

1.5 PACK CONTENTS

The fan heaters are supplied as standard in recyclable cardboard packaging with expanded polystyrene or pre-shaped cardboard protective covering.

The pack contains this manual of technical installation procedures, use and maintenance as well as plastic fittings and screws for fixing the filters in versions F-FR with covers.

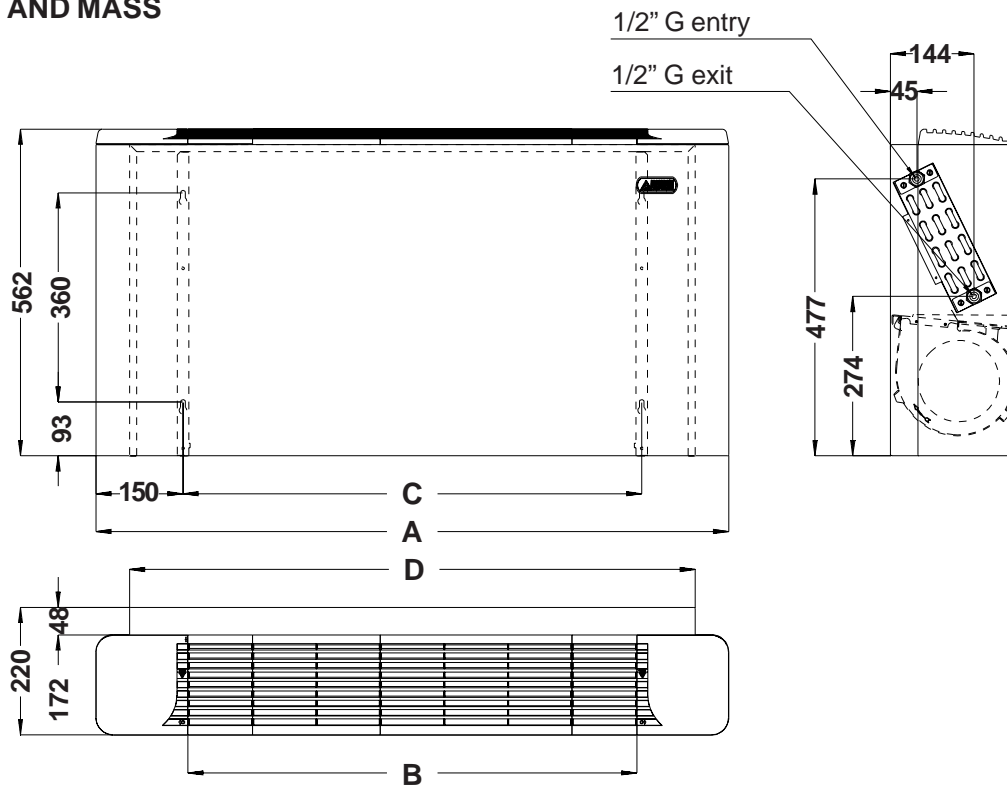
1.6 OPTIONAL ACCESSORIES

As well as the contents listed above, the following optional extras can be supplied:

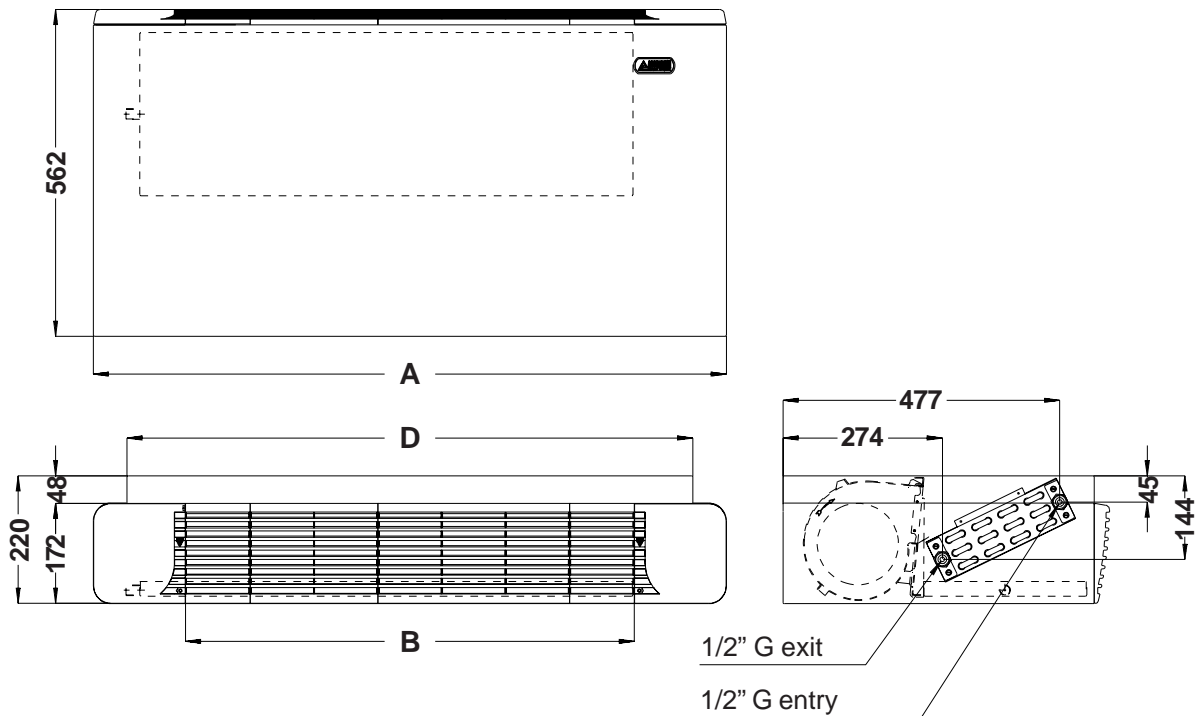
- Basic control panel 1 (with bracket for mounting on the appliance or on the wall).
- Basic control panel 2 (with bracket for mounting on the appliance or on the wall).

- Electronic thermostat 1 (with bracket for mounting on the appliance or on the wall).
- Electronic thermostat 2 (with bracket for mounting on the appliance or on the wall).
- Microprocessor thermostat (with bracket for mounting on the appliance or on the wall).
- Mechanical thermostat for base control panel 2.
- Mechanical thermostat for control panel with electronic thermostat 1.
- Minimum temperature gauge for control panel with electronic thermostat 2.
- Minimum temperature gauge for control panel with microprocessor thermostat.
- 1 row supplementary battery for heating.
- Auxiliary condensation collection tray for use with F - FC vertical versions.
- Pair of foot supports for F version with cover.
- Frontal grille support for F-FR versions with cover.
- 90° air intake system for FC - FCR versions with casing.
- 90° air output system for FC - FCR versions with casing.
- Direct air output system for FC -FCR versions with casing.
- Frontal air intake panel for FCR horizontal version with casing.
- Lower air intake panel for FCR horizontal version with casing.
- Lower/back air intake closure panel.
- Aluminium air intake grille with filter for FC - FCR versions with casing.
- Aluminium air output grille with fixed slats for FC - FCR versions with casing.
- Air filter for the built in versions FC - FCR.
- Valve kit for 3 row standard battery only, complete with pipes and fittings.

1.7 SIZE AND MASS



VERTICAL FR VERSION WITH COVER



HORIZONTAL FC VERSION WITH COVER

Fig. 1

Mod.	100	200	300	400	600	800
A	760	870	980	1.090	1.310	1.310
B	440	550	660	770	990	990
C	460	570	680	790	1.010	1.010
D	644	754	864	974	1.194	1.194

1.7 SIZE AND MASS

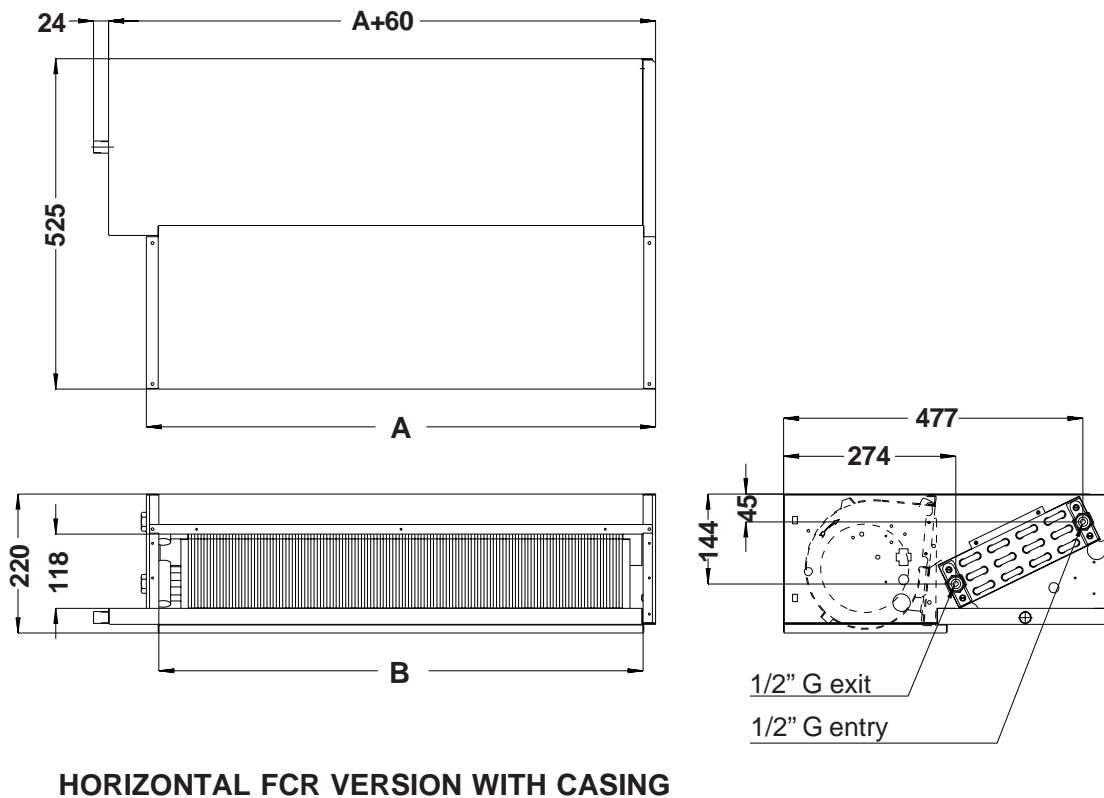
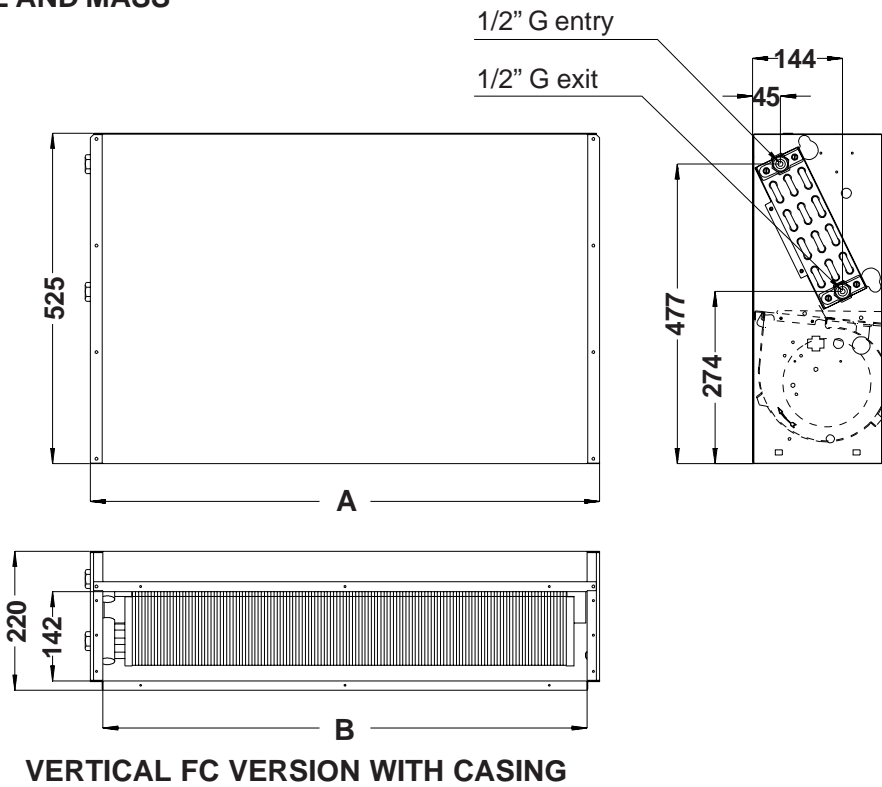


Fig. 2

Mod.	100	200	300	400	600	800
A	480	590	700	810	1.030	1.030
B	440	550	660	770	990	990

1.8 DETAILED VIEW - Vertical FR version with cover

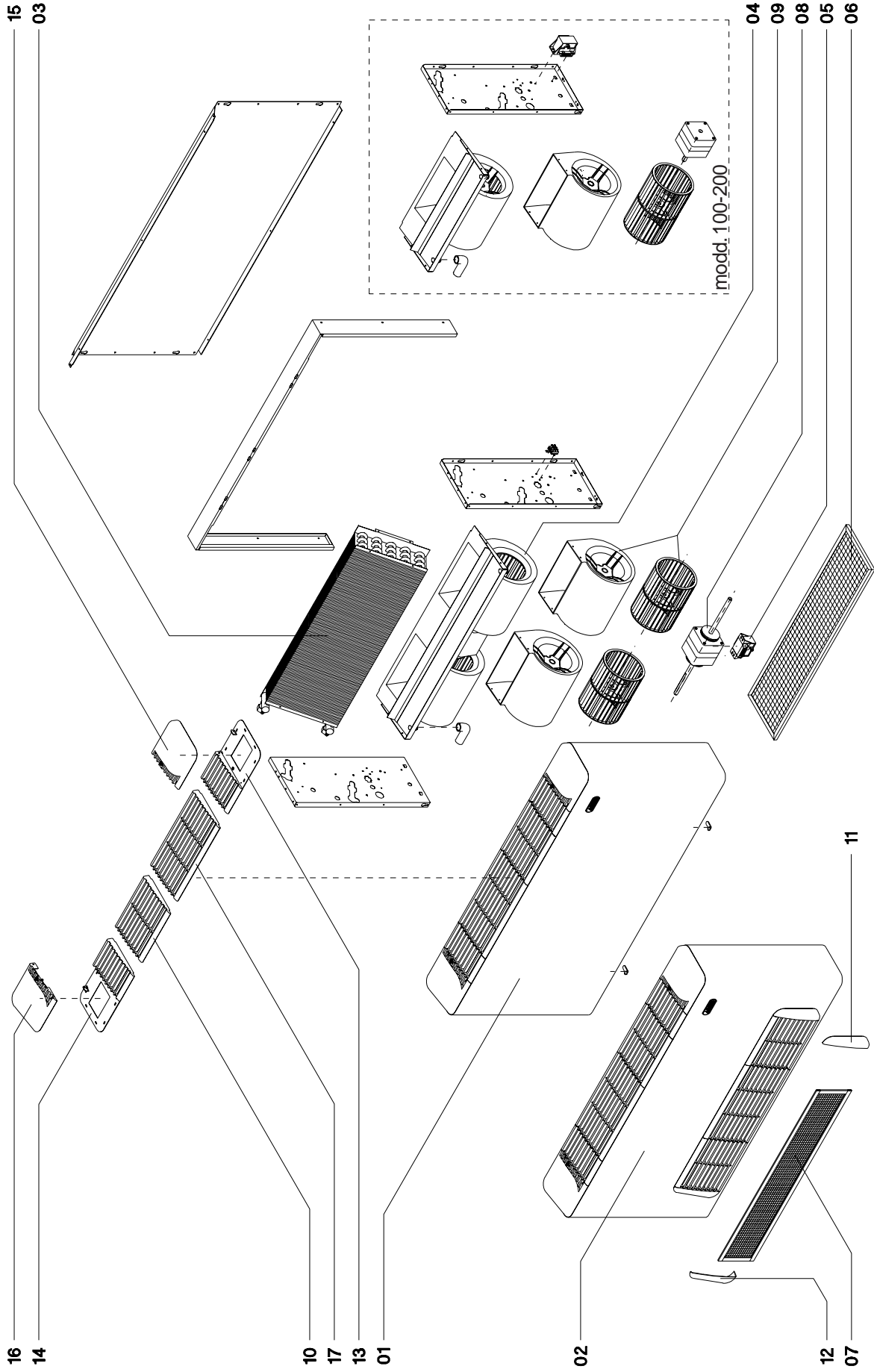


Fig. 3

1.8 DETAILED VIEW - Horizontal FC version with cover

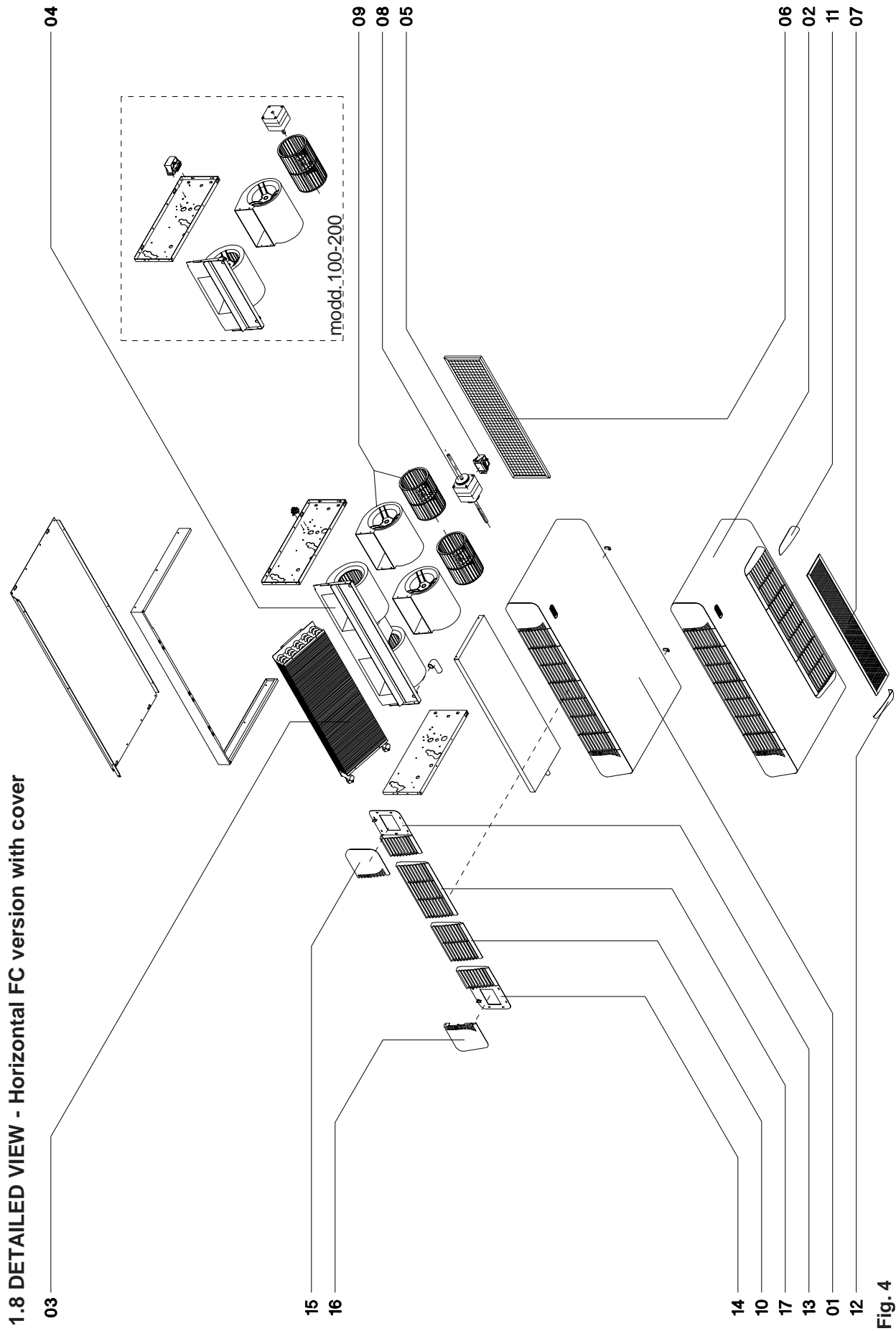


Fig. 4

1.8 DETAILED VIEW - Vertical FCO version with casing

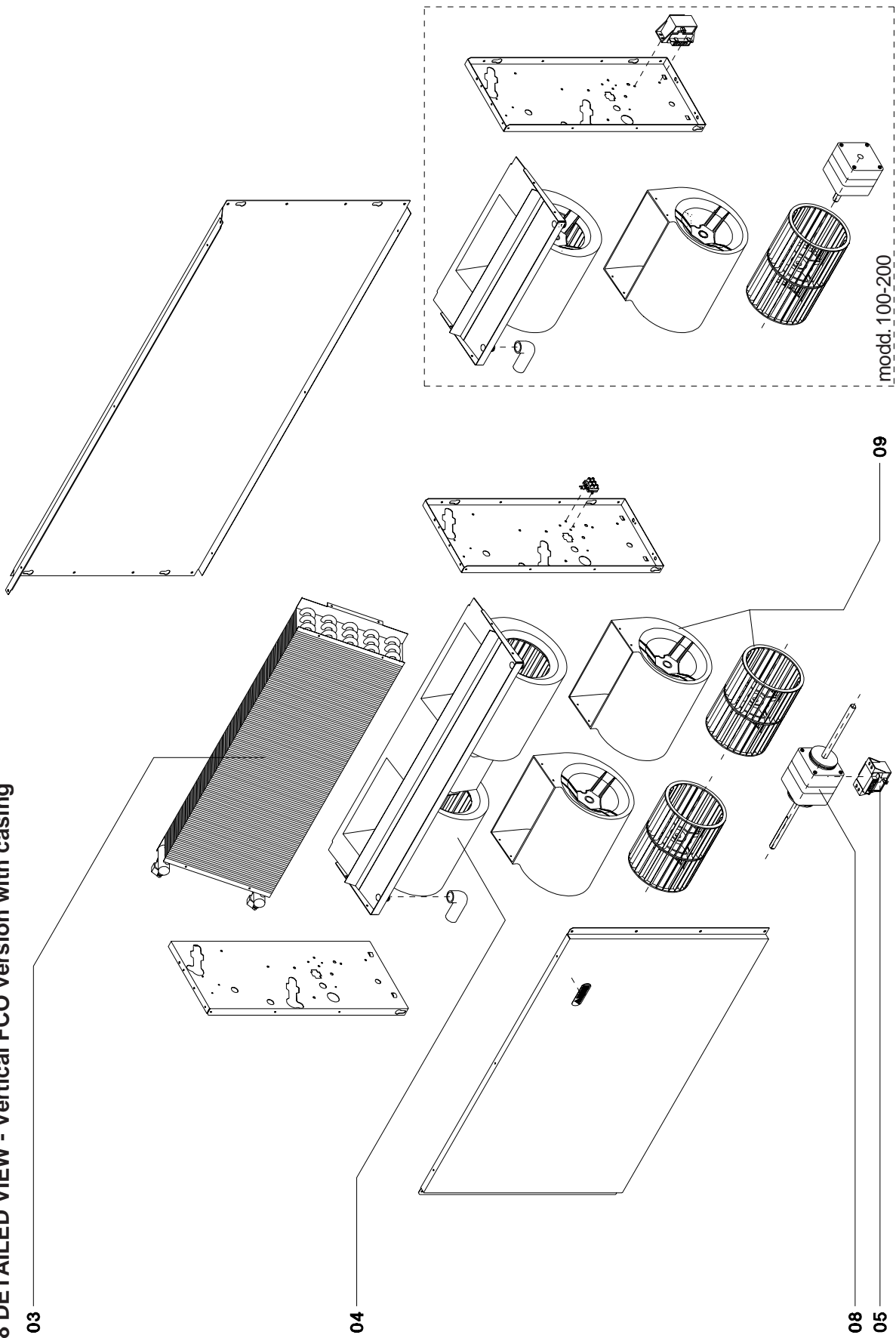


Fig. 5

1.8 DETAILED VIEW - Horizontal FCR version with casing

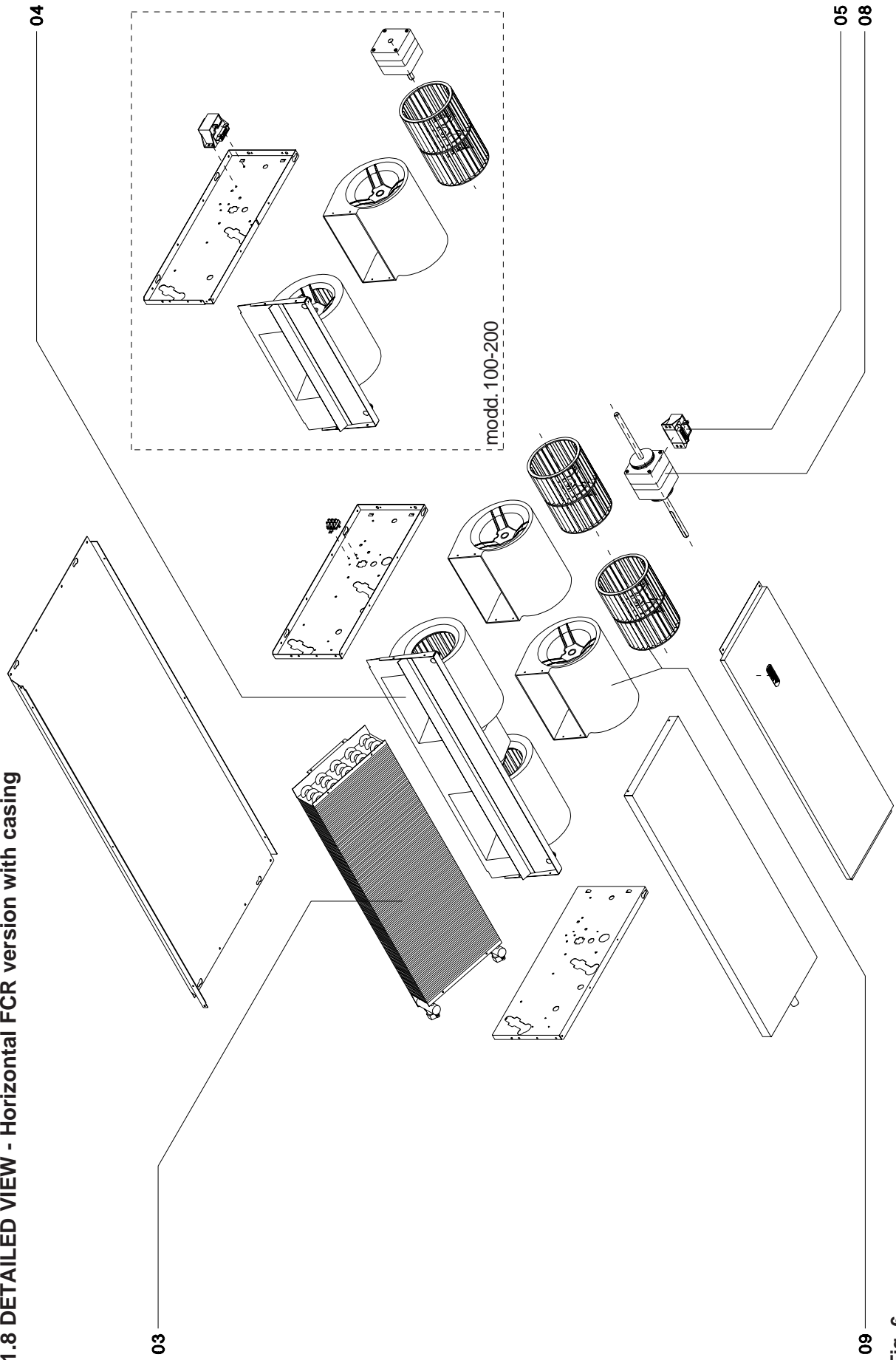


Fig. 6

Components

Vertical FR version with cover (fig. 3)

- 01 cover with grille
- 02 variation G with frontal air intake grille
- 03 3 row heat exchange system
- 04 complete fan system
- 05 autotransformer
- 06 standard air filter
- 07 frontal air intake filter or support
- 08 fan motor
- 09 fan casing + fan
- 10 220mm grille element
- 11 right front intake grille terminal
- 12 left front intake grille terminal
- 13 right grille terminal
- 14 left grille terminal
- 15 right flap
- 16 left flap
- 17 330mm grille element

Components

Vertical FCO version with casing (fig. 5)

- 03 3 row heat exchange system
- 04 complete fan system
- 05 autotransformer
- 08 fan motor
- 09 fan casing + fan

Components

Horizontal FC version with cover (fig. 4)

- 01 cover with grille
- 02 variation G with frontal intake grille
- 03 3 row heat exchange system
- 04 complete fan system
- 05 autotransformer
- 06 standard air filter
- 07 frontal air intake filter or support
- 08 fan motor
- 09 fan casing + fan
- 10 220mm grille element
- 11 right front intake grille terminal
- 12 left front intake grille terminal
- 13 right grille terminal
- 14 left grille terminal
- 15 right flap
- 16 left flap
- 17 330mm grille element

Components

Vertical FCR version with casing (fig. 6)

- 03 3 row heat exchange system
- 04 complete fan system
- 05 autotransformer
- 08 fan motor
- 09 fan casing + fan

1.9 TECHNICAL DATA TABLE		<i>Unit of mes.</i>	100	200	300	400	600	800
Heat potential (incoming water 70°C)	W	max.	2.830	4.130	5.640	7.050	9.770	12.330
		med.	2.530	3.680	5.140	6.290	8.860	11.230
		min.	2.220	3.210	4.670	5.230	7.480	10.580
Max water capacity	l/h		243	355	485	606	825	1.060
Max charge loss water 70 °C	kPa		1,50	3,00	7,30	11,45	23,50	33,00
Heat potential (incoming water 50°C) (E)	W	max.	1.620	2.200	3.370	4.050	5.900	6.060
		med.	1.450	1.830	3.070	3.640	5.270	5.610
		min.	1.270	1.680	2.790	3.240	4.620	5.090
Max charge loss water 50 °C (E)	kPa		max. 1,03	2,27	6,45	8,90	22,25	26,50
Heat potential for supplementary 1 row battery	W	max.	1.860	2.420	3.380	4.100	5.930	6.530
		med.	1.710	2.240	3.160	3.800	5.510	6.270
		min.	1.540	2.060	2.970	3.490	4.630	6.070
1 row battery water capacity	l/h		160	208	291	352	516	559
Max charge loss water 1 row battery	kPa		4,50	7,60	16,00	26,50	46,00	51,00
Total cooling potential (E)	W	max.	1.150	1.630	2.730	3.110	4.660	5.140
		med.	1.030	1.380	2.410	2.880	4.230	4.740
		min.	880	1.270	2.190	2.630	3.870	4.360
Sensitive cooling potential	W	max.	930	1.320	2.220	2.550	3.640	4.150
		med.	830	1.110	1.940	2.180	3.220	3.670
		min.	700	995	1.720	1.970	2.850	3.340
Max cooling water capacity	l/h		192	275	460	552	790	868
Max charge loss cooling water (E)	kPa		1,22	2,70	7,65	10,55	26,45	31,00
Air capacity (E)	m ³ /h	max.	210	340	450	560	760	1.000
		med.	180	280	400	485	630	890
		min.	150	240	340	434	540	780
Number of fans	n°		1			2		
Noise levels	dB (A)	max.	30,6	39,5	40,7	42,3	44,7	50,0
		med.	27,7	34,9	37,4	39,4	41,8	48,1
		min.	22,9	31,9	34,2	36,7	37,1	45,5
Noise potential (E)	dB (A)	max.	39,1	48,0	49,2	50,8	53,2	58,5
		med.	36,2	43,4	45,9	47,9	50,3	56,6
		min.	31,4	40,4	42,7	45,2	45,6	54,0
Electric power	230 V / 1 / 50 Hz							
Max motor potential (E)	W		34	45	58	77	104	123
Max current absorption	A		0,15	0,20	0,25	0,34	0,46	0,59
Weight	kg		17,0	19,0	22,0	24,6	28,8	30,2

(E) = Eurovent certified. Data refer to the following working conditions:

Summer cooling: *outside air temperature: 27 °C b.s., 19 °C b.u.*

Water temperature: intake 7 °C, outgoing 12 °C at max speed

Winter heating: *outside air temperature: 20 °C*

Water temperature: intake 70 °C, ΔT 10 °C at max speed

(with intake water at 50 °C the same water capacity as for cooling at max speed)



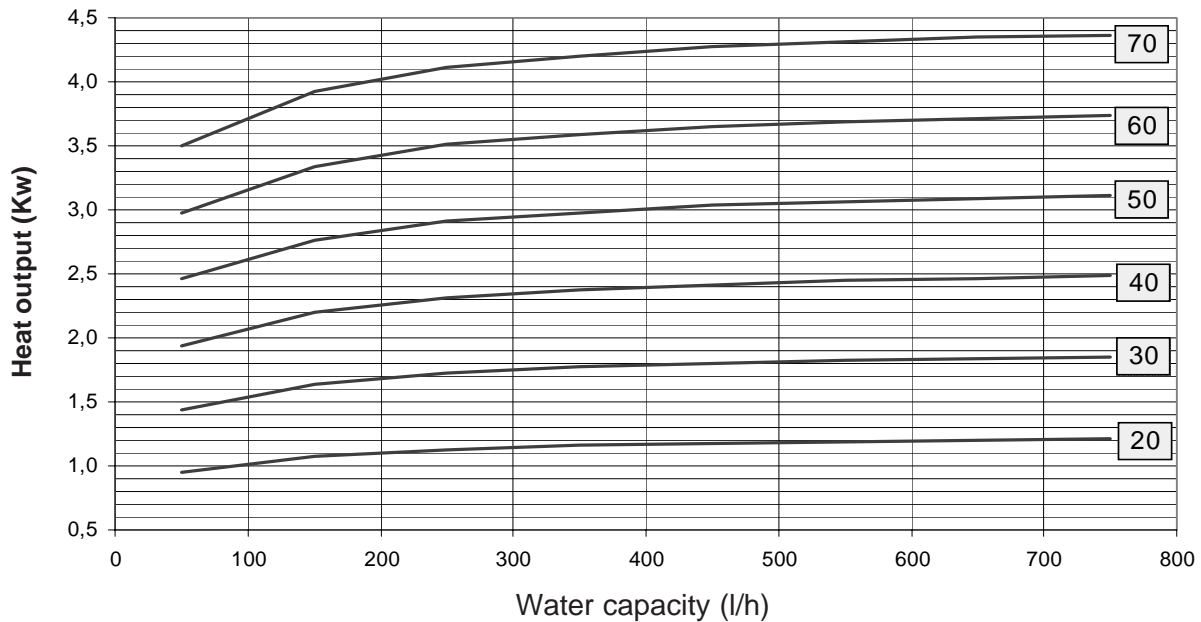
1.10 3 row standard battery potential heat output diagrams

Heat output - Mod. 100

The heat output figures in the graph are for max. speed. To calculate output at other speeds, multiply the values by the following coefficients:

V med 0,87

V min 0,77



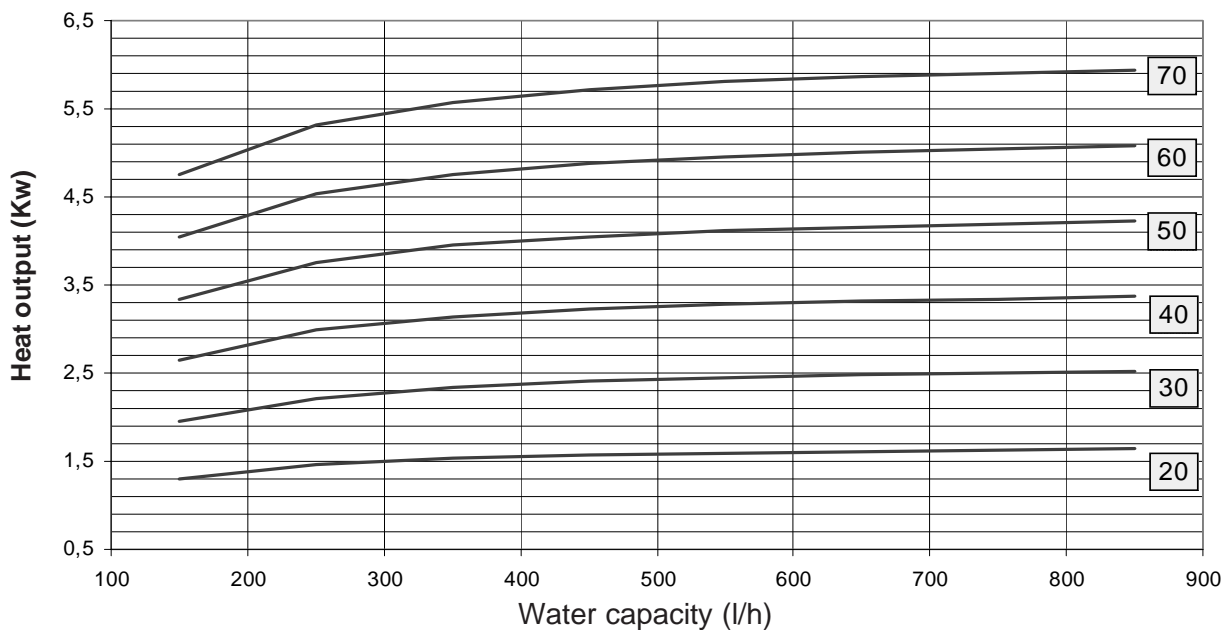
$$\Delta T = T_{\text{ingoing water}} - T_{\text{air}}$$

Heat output - Mod. 200

The heat output figures in the graph are for max. speed. To calculate output at other speeds, multiply the values by the following coefficients:

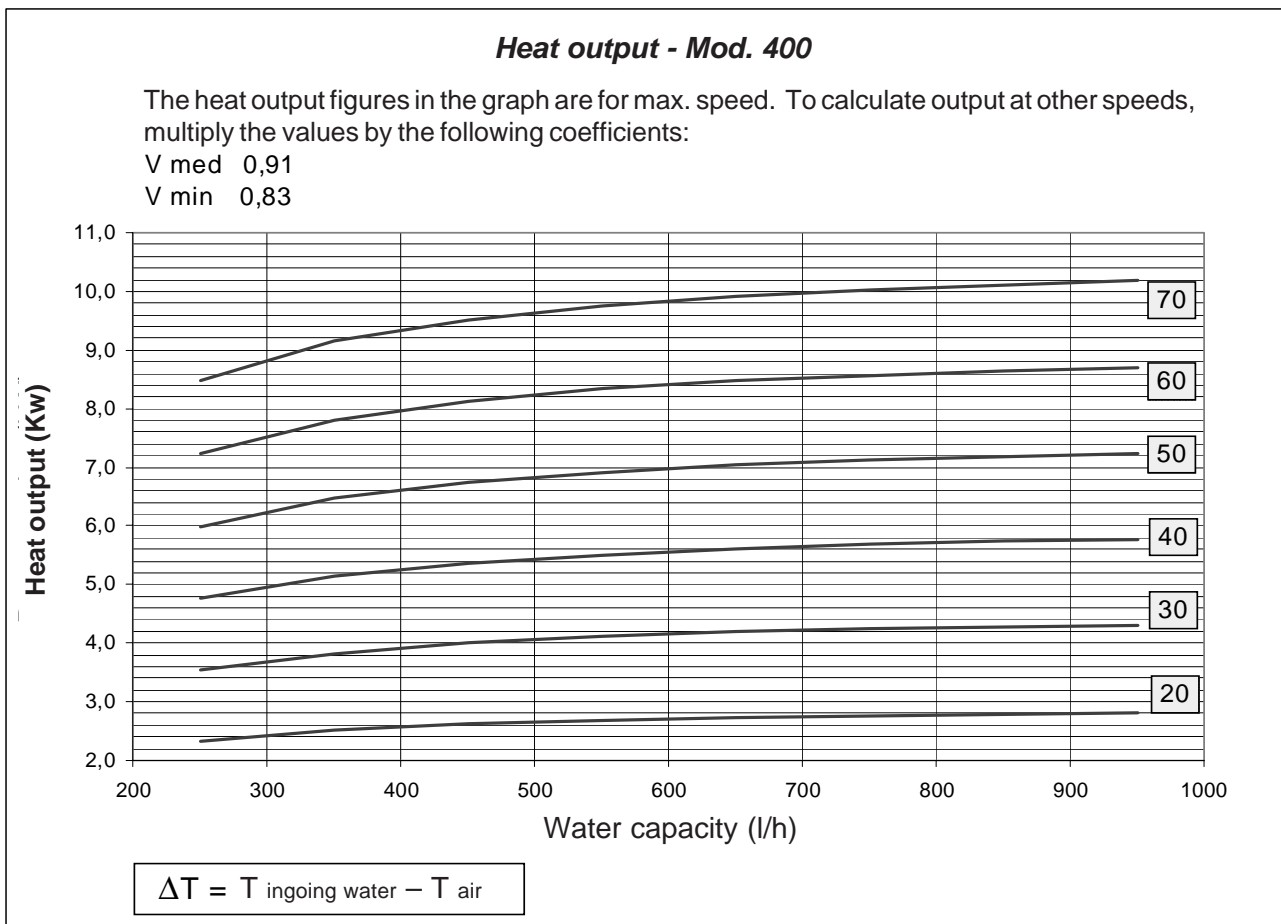
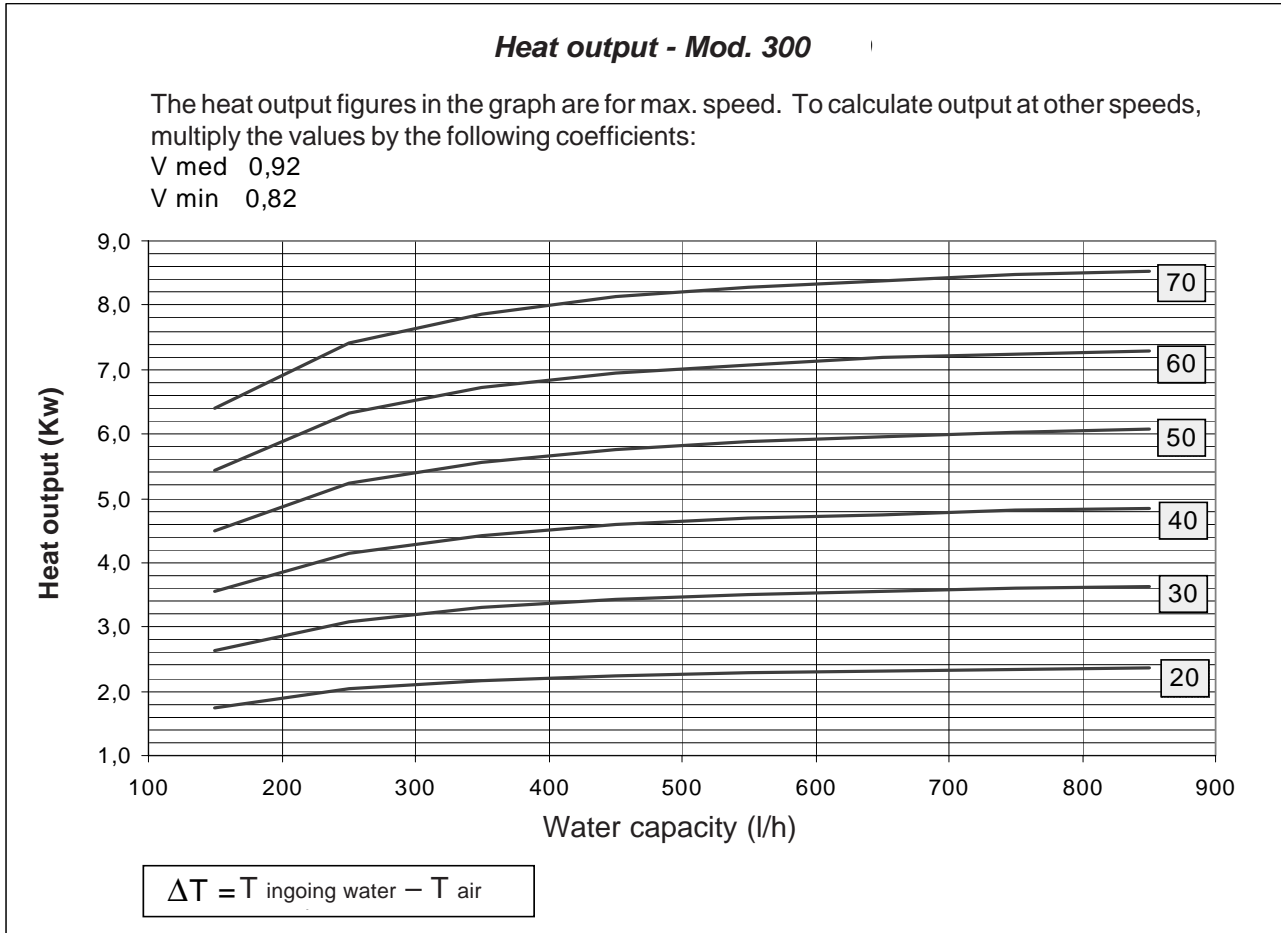
V med 0,88

V min 0,79

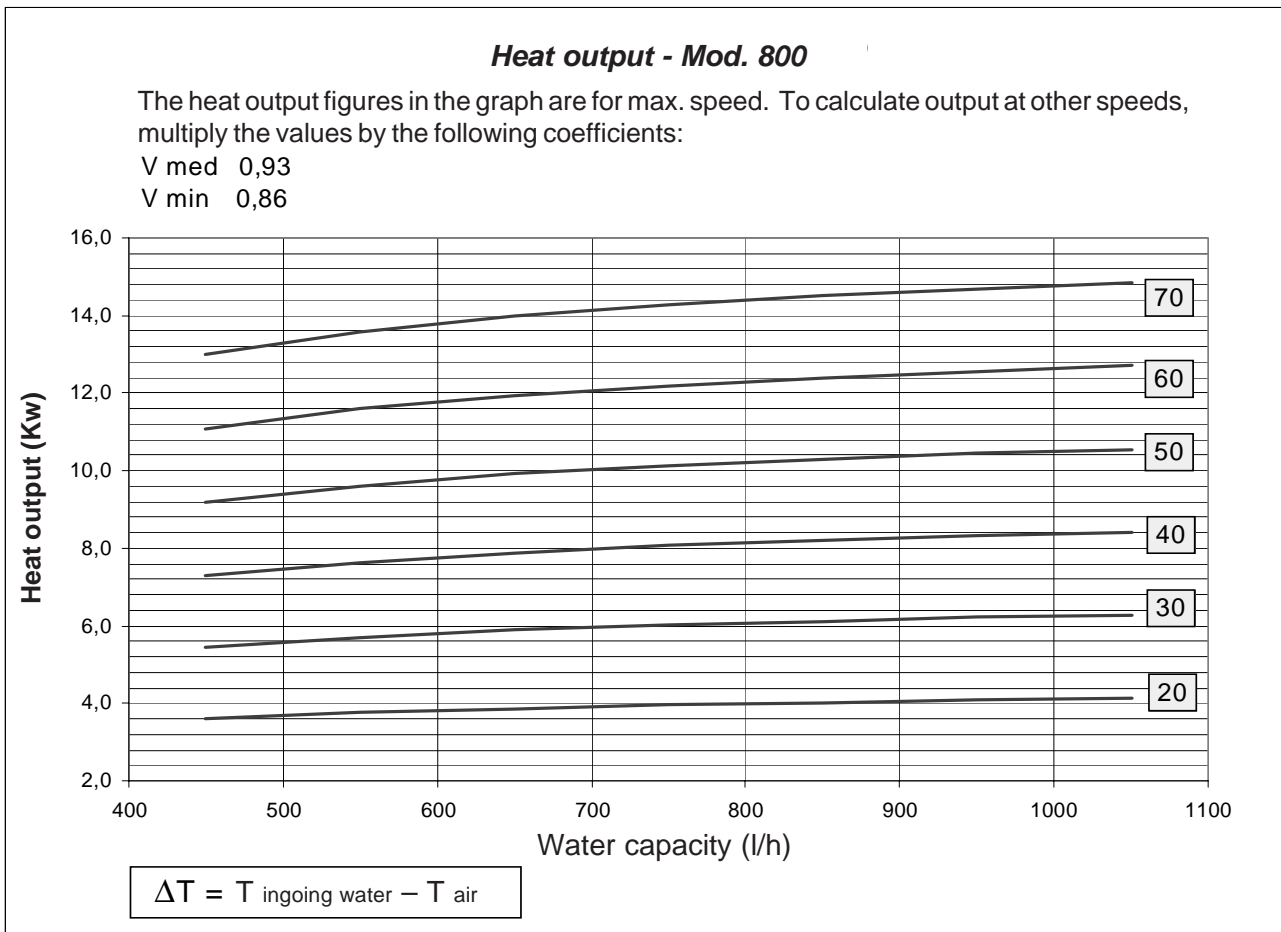
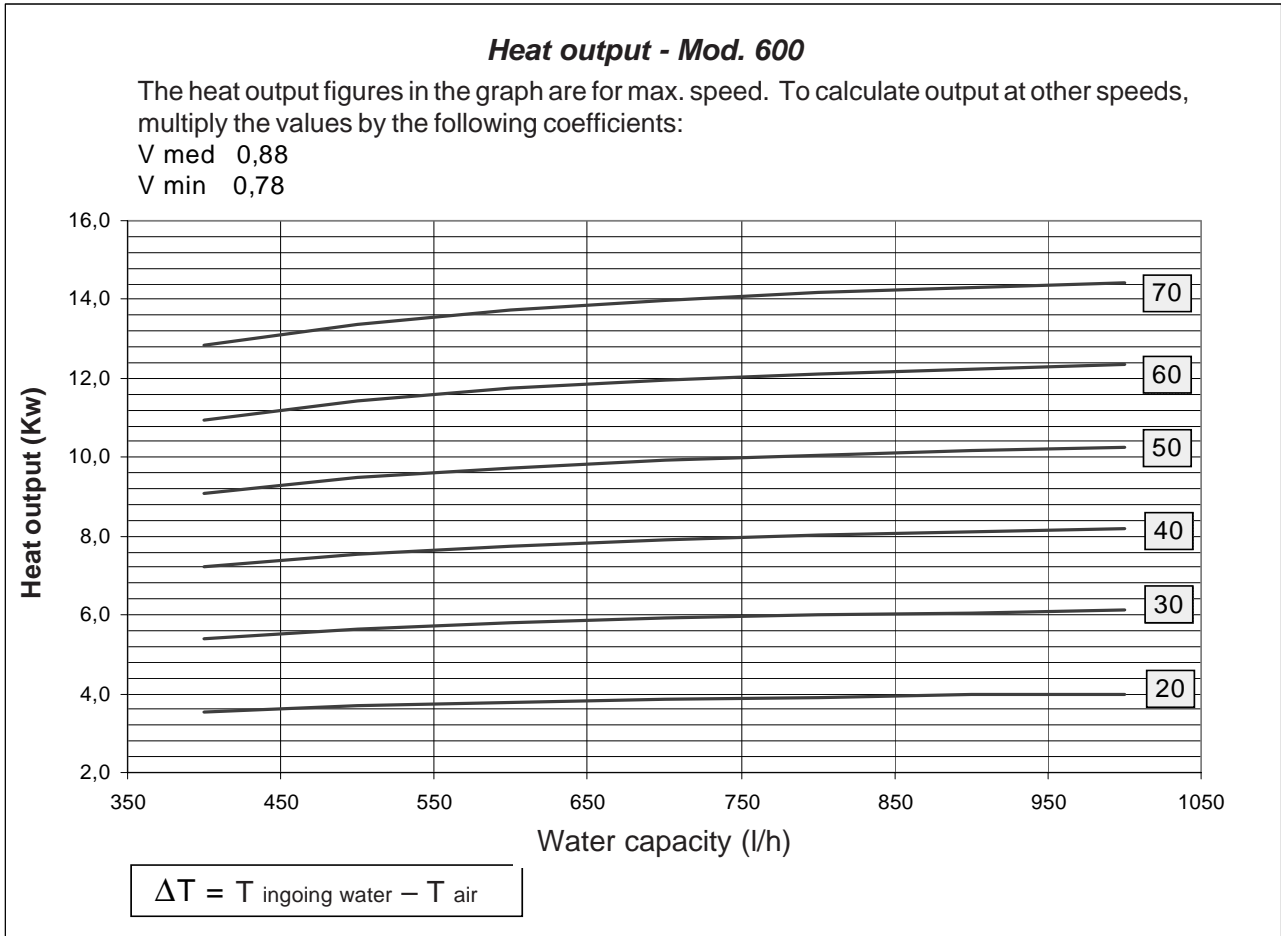


$$\Delta T = T_{\text{ingoing water}} - T_{\text{air}}$$

1.10 3 row standard battery heat potential diagrams



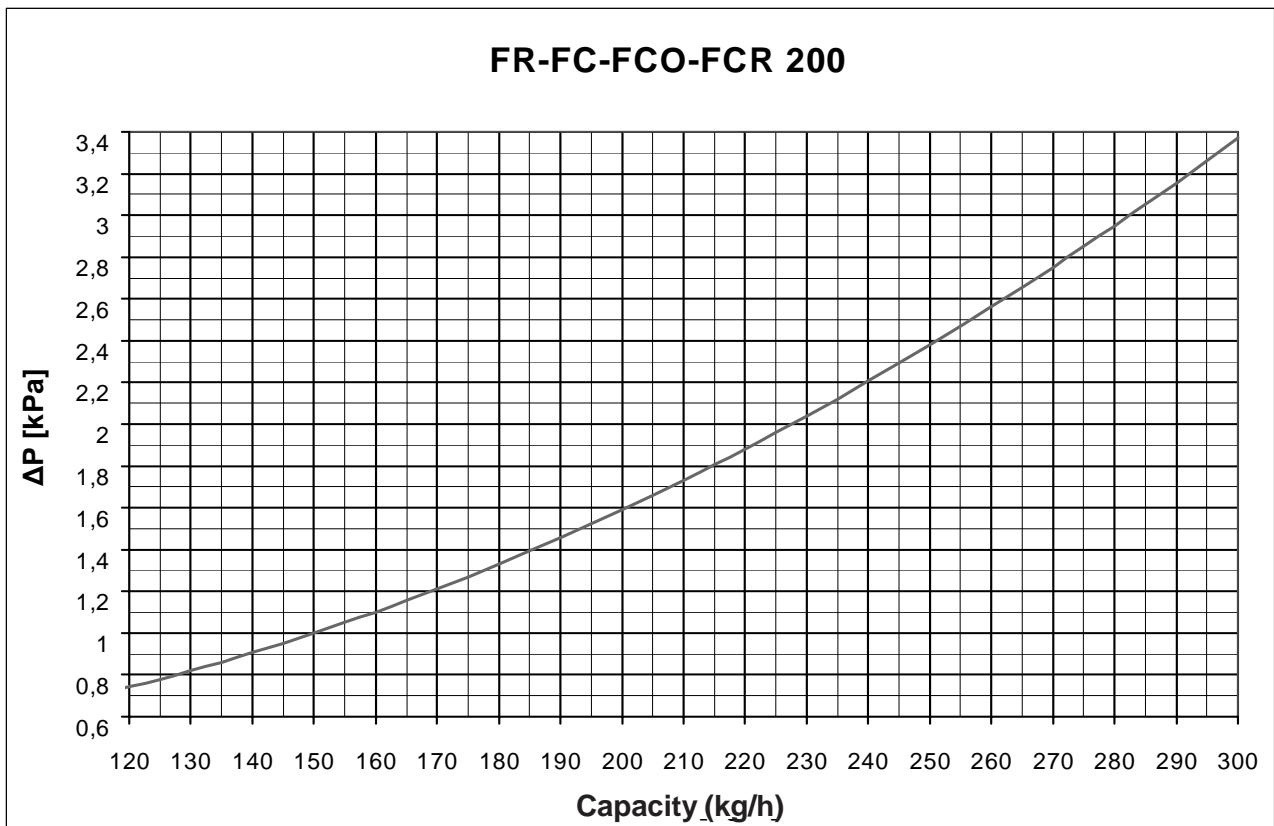
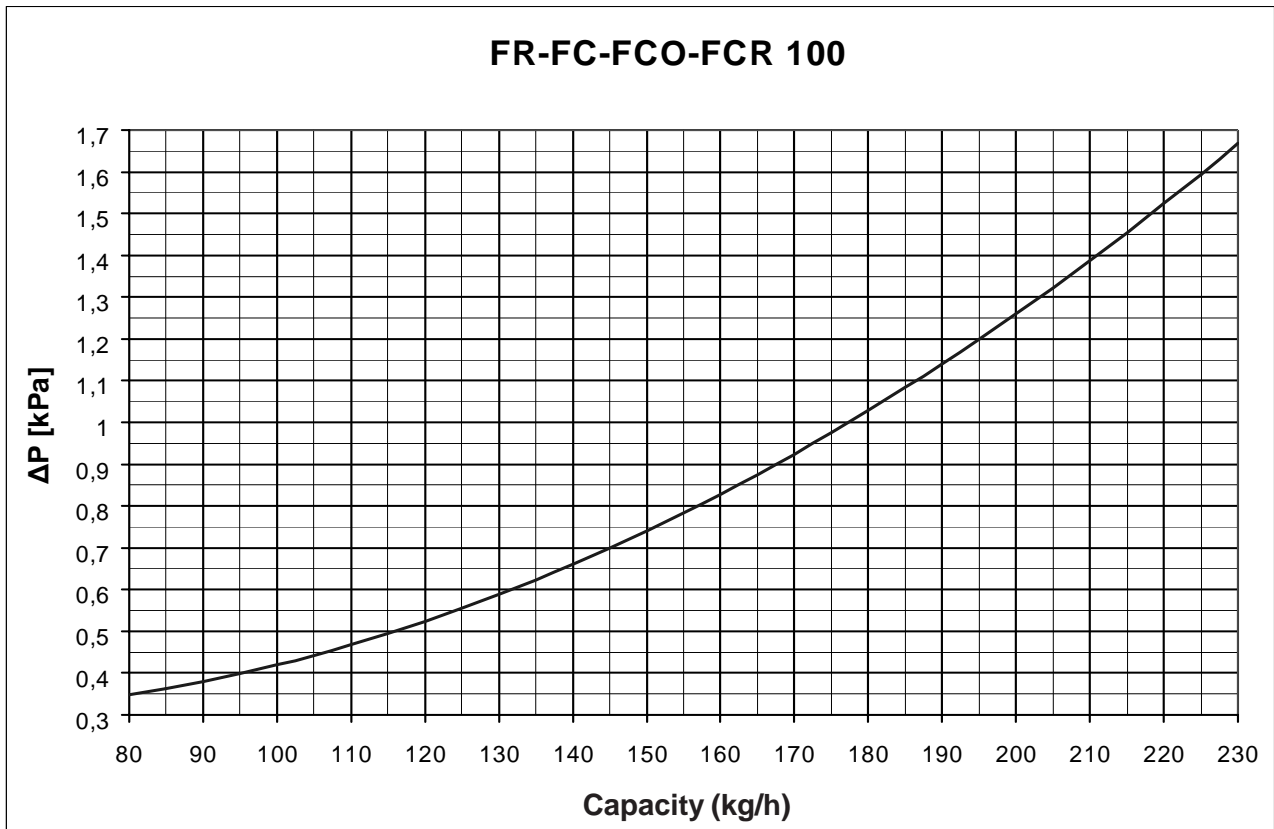
1.10 3 row standard battery heat potential diagrams



1.11 Diagrams for standard 3 row battery charge loss for 10°C water

To calculate charge loss at different temperatures, multiply by coefficient K

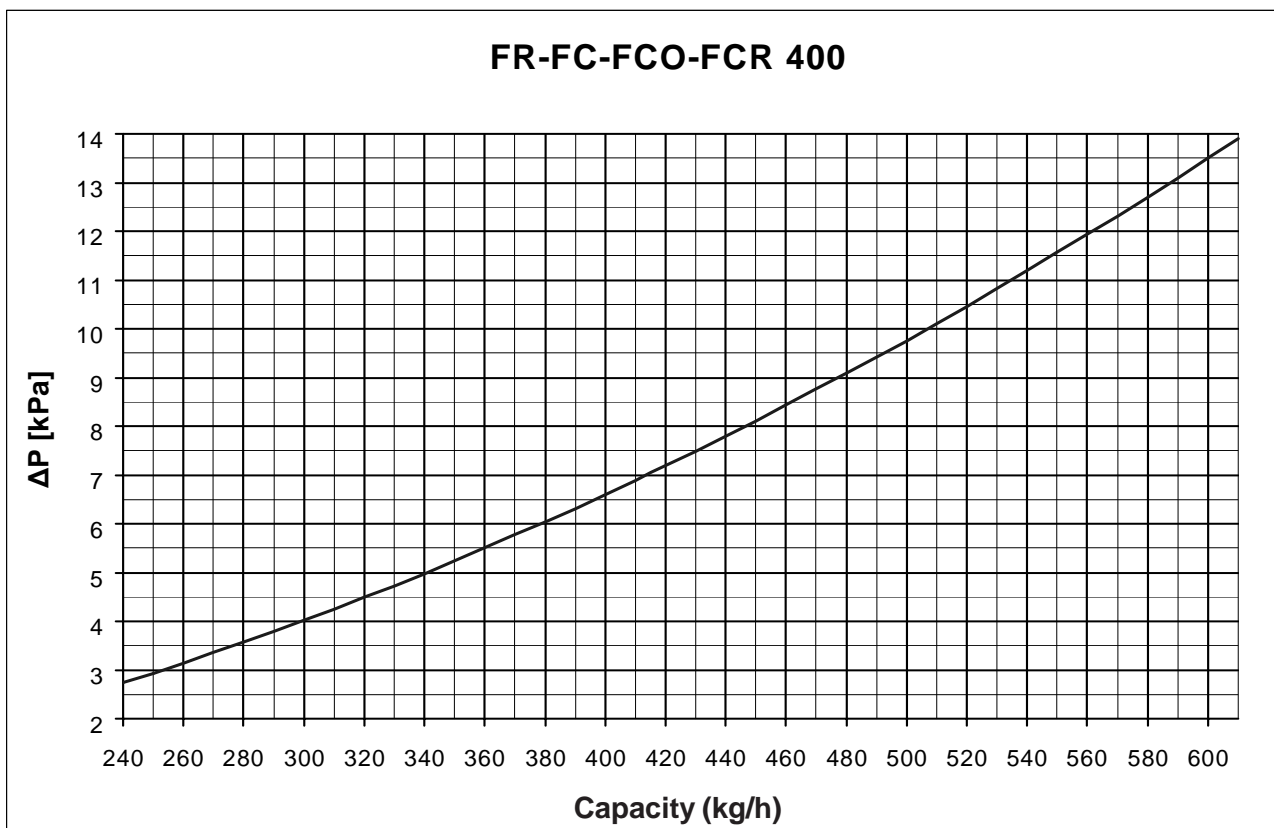
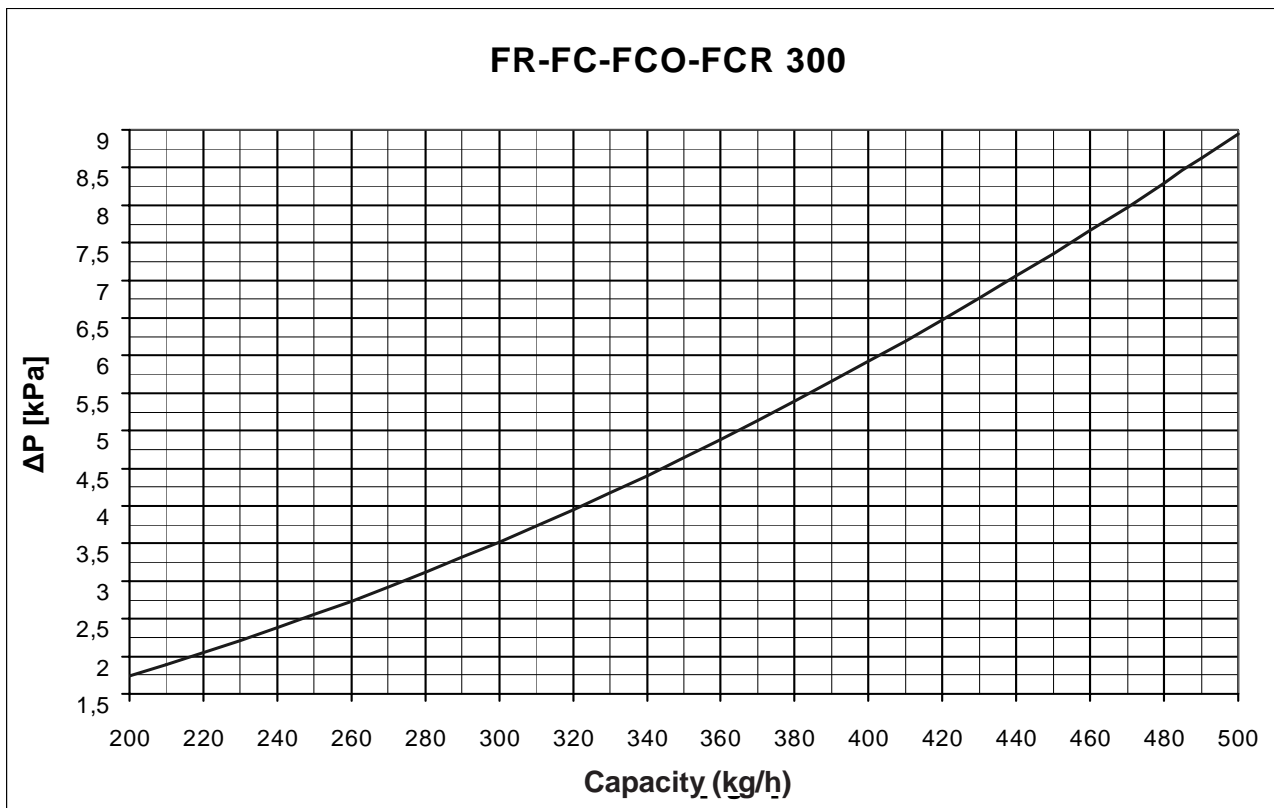
°C	40	50	60	70	80
K	0,88	0,86	0,84	0,82	0,8



1.11 Diagrams for standard 3 row battery charge loss for 10°C water

To calculate charge loss at different temperatures, multiply by coefficient K

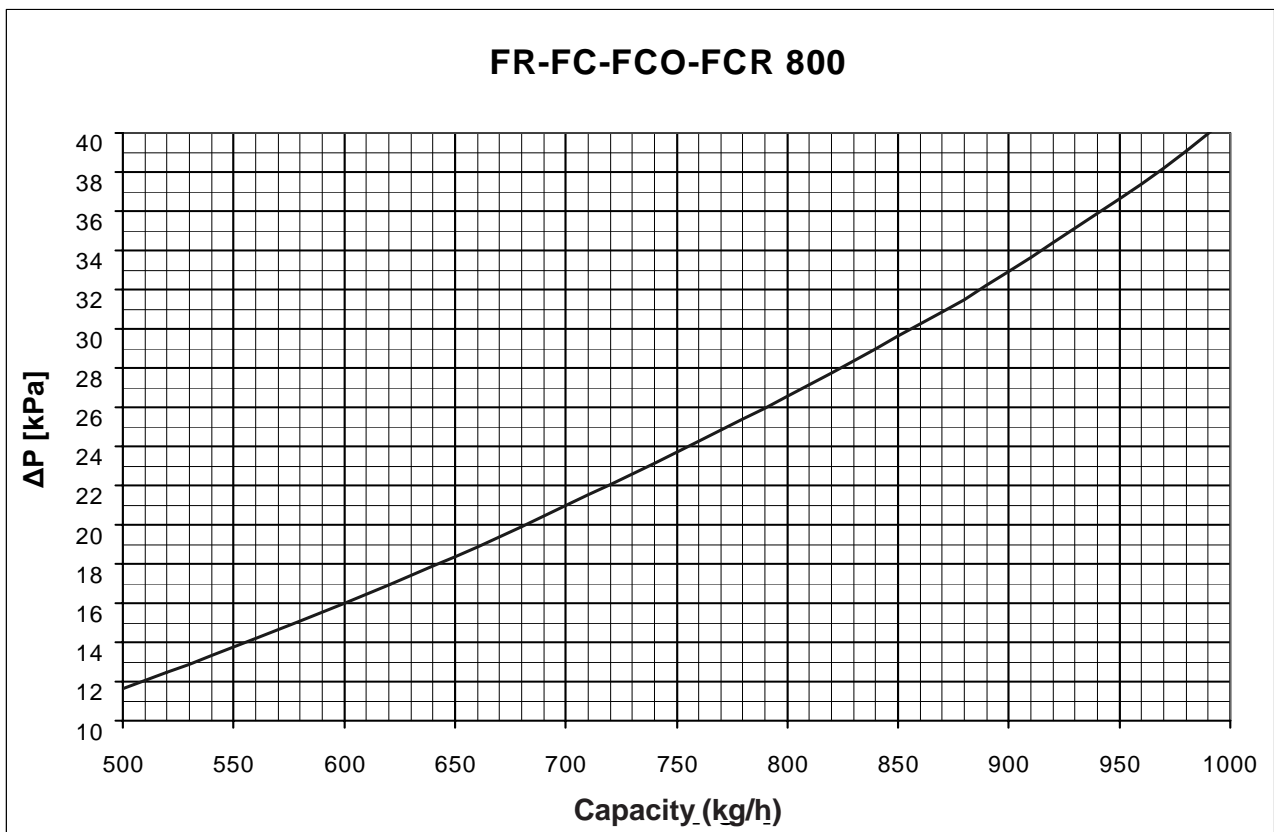
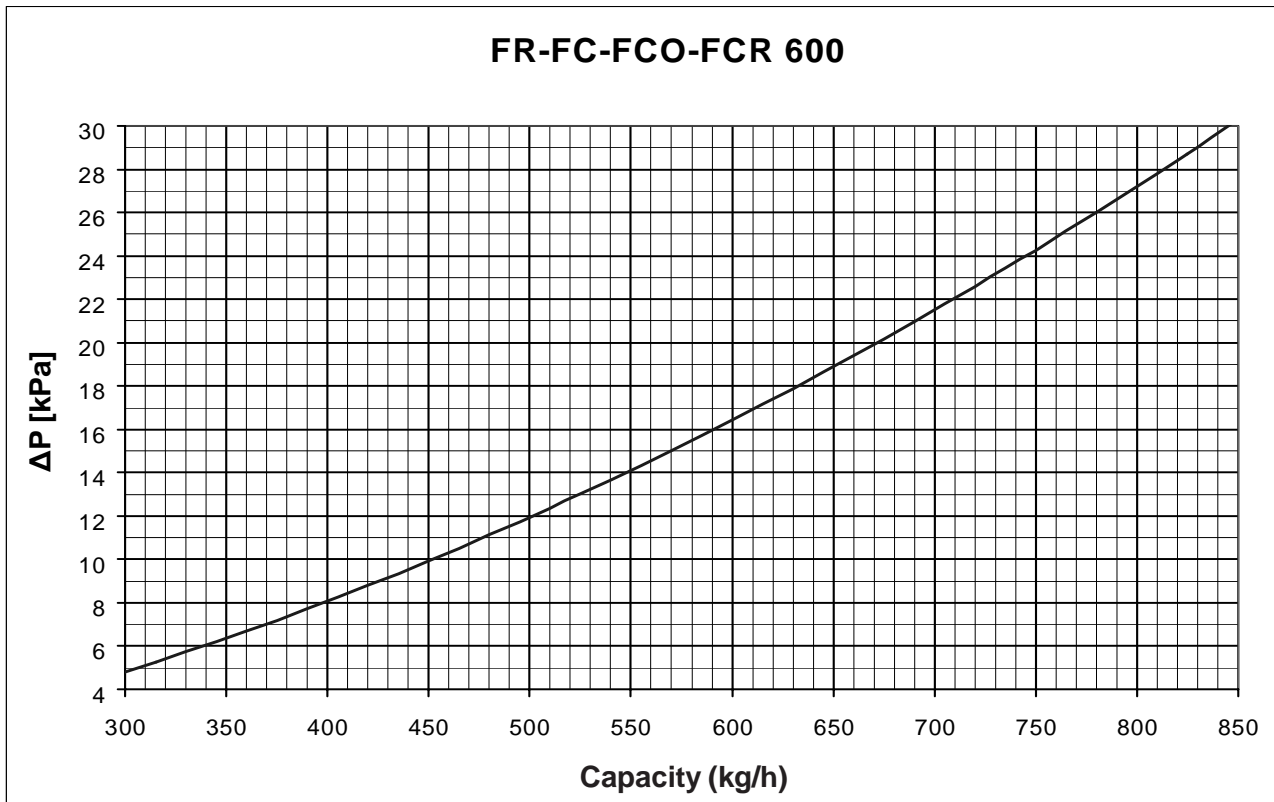
°C	40	50	60	70	80
K	0,88	0,86	0,84	0,82	0,8



1.11 Diagrams for standard 3 row battery charge loss for 10°C water

To calculate charge loss at different temperatures, multiply by coefficient K

°C	40	50	60	70	80
K	0,88	0,86	0,84	0,82	0,8



1.12 ELECTRICAL LAYOUT

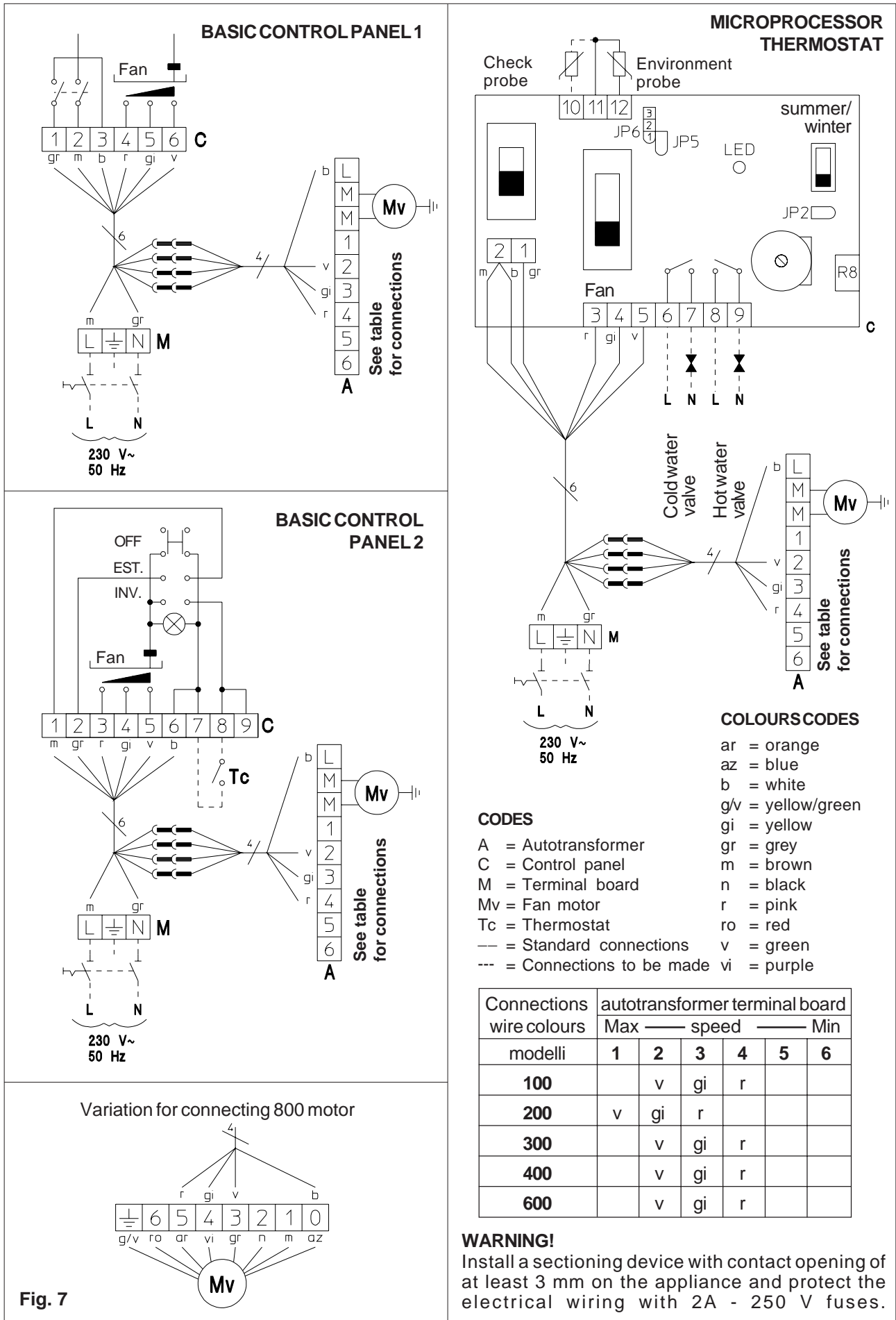


Fig. 7

1.12 ELECTRICAL LAYOUT

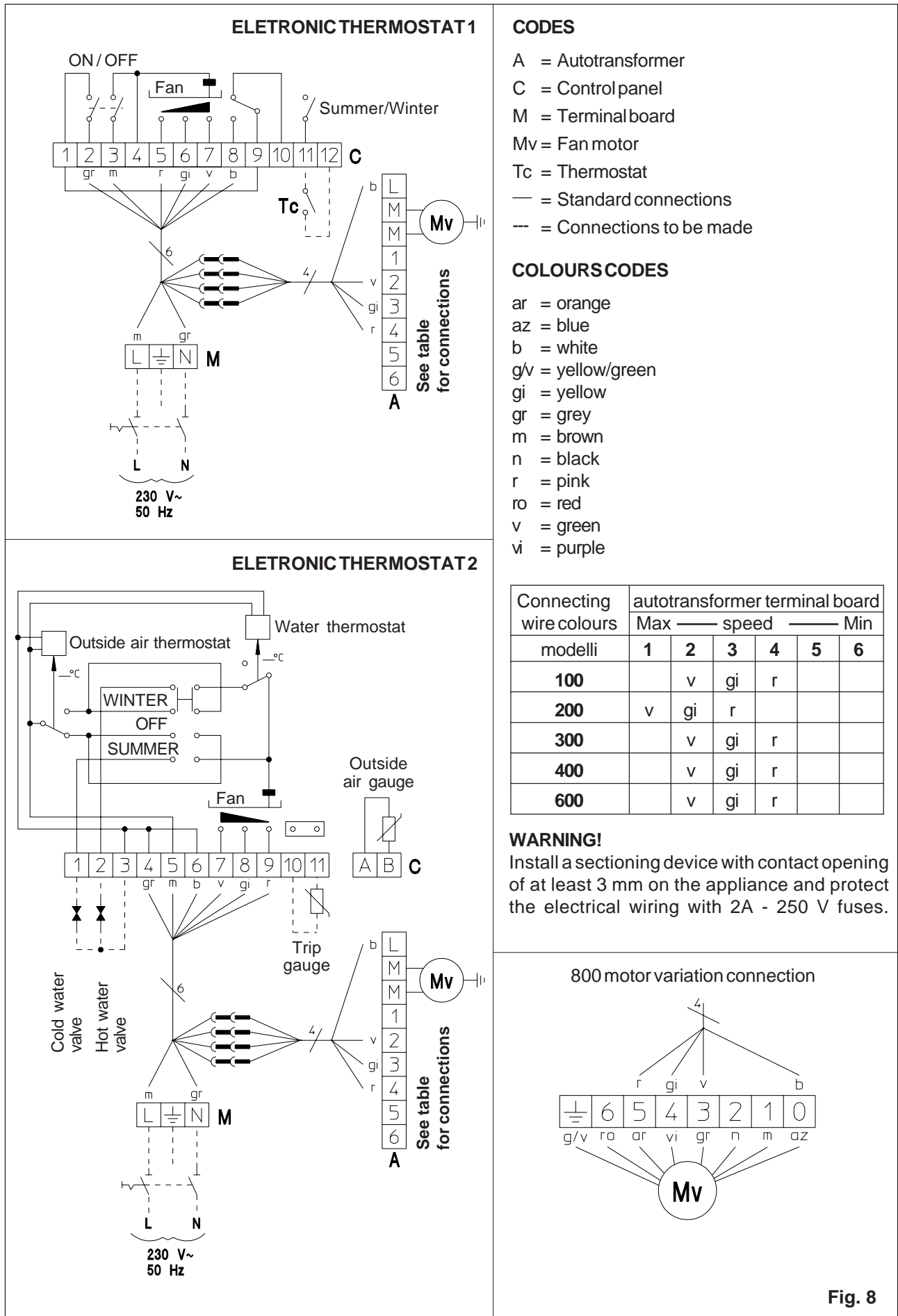


Fig. 8

SECTION B - TECHNICAL NOTES FOR THE INSTALLER

2. ATTENTION

2.1 2.1 INSTALLER QUALIFICATIONS

WARNING! Both the plumbing and electrical parts of the installation must be carried out by specialists, qualified under the terms of law 46/90, who can correctly perform the operations specified in this manual.

2.2 PRELIMINARY INFORMATION

Before starting installation, ensure that the options chosen and any plans made conform to the current rules and regulations regarding heat generators and/or cooling systems for use in the plant.

As examples, the following are some of the present provisions:

- a technical report must be compiled with regard to the provisions in force for energy savings in new buildings. Art. 28 of law 9 of January 1991, no. 10.
- a plan must be produced for plants in public buildings using combustible gas with a heat potential >35 kW (30,000 kcal/h) or for air conditioning plants with cooling potential > 40,000 frig/h (46.5 kW).
- There must be a check on the installation in relation to the electrical wiring of locales according to EIC norms of electrical safety (for example in places where there is a bath or shower).

The relevant technical regulations and legislation are:

- Law 5 March 1990, no. 46 "regulations for safety of plants", published in G.U. no. 59 of 12/3/90.
- D.P.R. 6/12/91 no. 447 "Regulating implementation of law 5 of March 1990, no. 46, with respect to safety of plants", published in G.U. no. 38 of 15/2/92.
- Regulation UNI-CTI 10344, '93 edition, "Heating in buildings - energy use calculations".

To ensure conformity with all the above, use a qualified central heating engineer who can guarantee correct compliance and execution of all necessary operations.

2.3 TRANSPORT AND HANDLING

The fan heater comes in a standard cardboard pack with internal expanded polystyrene or cardboard protective packing. The pack may be moved manually or by forklift, taking care to respect the signs on the cardboard box with their appropriate symbols.

Where there are multiple packs on pallets, move with a forklift which is designed for the weight and size of the pack and do not force or distort the box. Respect safety regulations while moving the load.

Place the packs vertically on top of each other up to the maximum number shown on the packs.

WARNING! Maximum weight for one person alone to lift is 30 kg.

On taking delivery, ensure that there has been no visible damage to the pack and/or to the appliance during transport. Where there is any damage, make an immediate formal complaint to the transporter. **Do not install appliances damaged during transport.**

Any storage premises must have stable flooring, must not be damp and must be free from air pollution (**in warehouses prepare flooring using pallets to support the packs in a dry, sheltered place**). Keep the packs in places where no-one, even accidentally, can walk on them or use them to put things on.

2.4 DATA CHECK

Check that the fan heater and its technical characteristics conform with what was in the plan or other specifications. The appliance identification data is on a label in the back of the unit on the right side of the frame.

2.5 USE OF INSTRUCTIONS

WARNING! When installing or working on the appliance, follow all the instructions in this manual. Any changes in connections and/or any failure to respect the instructions will immediately nullify the guarantee and any manufacturer's responsibility.

3. INSTALLATION

3.1 POSITIONING NOTES

WARNING! The appliances are not designed for use in industrial processes and/or installation in places where corrosive or explosive products are used.

Before proceeding with installation, make sure that the following conditions apply in the area where the fan heater is to be installed:

- a) that there is a single-phase 230 Volts - 50Hz electricity supply and that the plumbing connections correspond to the standard connections on the left side of the fan heater;
- b) that condensation waste pipes can be fitted efficiently with an adequate slope (minimum 1%) to join up with a siphon connection to the waste disposal system in the building;
- c) that the position allows for the correct dispersion of air and that air flow is not obstructed by any obstacles like sills, furniture, curtains and, on the other hand, that the air flow does not cause disturbance to any people present;
- d) that the position of the appliance permits access for maintenance as well as to the bleed valves attached to the side. Respect the distances shown in fig. 9. **When installing versions with casing, put in a removable panel for access to the fan heater and for its eventual removal.**
- e) vertical installation units F - FC must be placed at a height of about 10 cm from the floor, so that air is collected correctly by the fan heater. There must be the same distance between the wall and the back of the appliance

for horizontal versions FR - FCR (fig. 9). When using appropriate accessories (for example, feet or supports) follow the instructions for mounting them.

- f) when installing horizontally, make sure that the support surface is of a material and capacity suitable for supporting the weight of the appliance. Ensure that the fixing devices are suitable for keeping the fan heater stable for a long time.

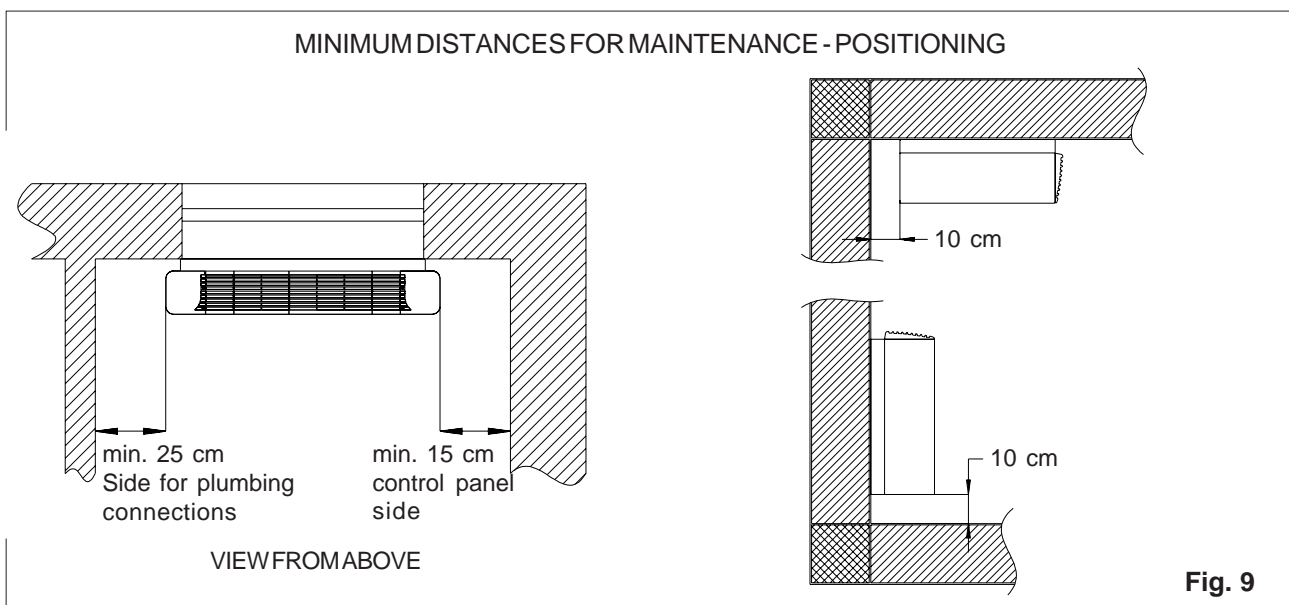
3.2 INSTALLATION PROCEDURES

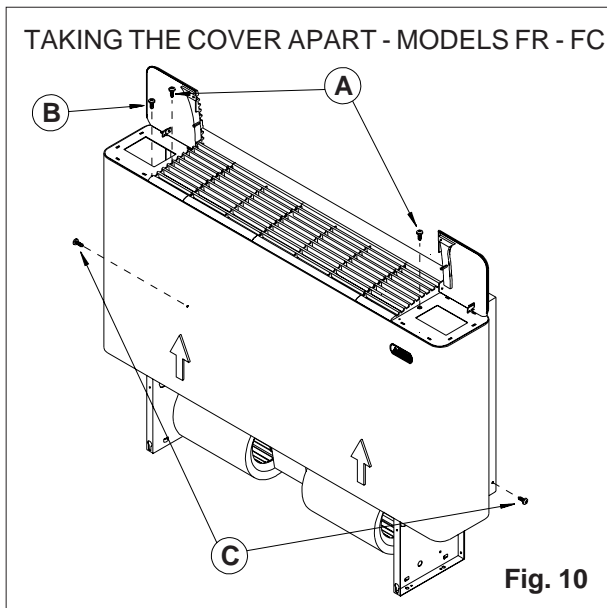
WARNING! Put on protective gloves and clothing before installing the fan heater (some parts, like the slat system of the heat exchanger battery, can be sharp). Use appropriate tools to avoid accidents during installation.

Take the fan heater out of the packaging, extracting it from the top of the side shown on the box and taking off the polystyrene and cardboard protection.

For units with covers, take away the filter and take apart the cover (see fig. 10) unscrewing the two screws (A) under the side doors of the grille (the right door, standard position for the control panel, can be opened by pushing and releasing in the spot where "PUSH" is written, while the left is fixed with a screw (B). Undo the two screws (C) which fix the cover to the side frame supports at the bottom back of the cover itself.

Lift the cover carefully until the two flanges on the lower edge free the cover from the sides of the frame. Put the cover in a safe place or in the





packaging until the installation is complete.

Ensure that the plumbing and electrical connections are compatible with those on the fan heater and with any accessories which are to be installed.

3.2.1 Mounting the fan heater

Once the position for the appliance has been established, mark the four holes to be used for fixing the unit (*fig. 11*). Use plugs (not supplied) suitable for the type of support surface (solid brick, cavity wall, panels etc.).

WARNING! To ensure correct drainage of condensation into the tray, position the holes and screws in such a way that the fan heater is slightly inclined towards the condensation discharge (about 4mm per metre is advisable). If this is not done,

traces of water may be found under the fan heater and/or in the room.

Put the plugs in the holes, leaving the screws loose.

It is advisable for two people to lift and position the fan heater in order to avoid any possible damage to the wall or to the appliance.

Lift the fan heater, placing the 4 fixing points on the screws and screw into place. Turn the screws sufficiently to ensure safe mounting.

3.2.2 Plumbing connections

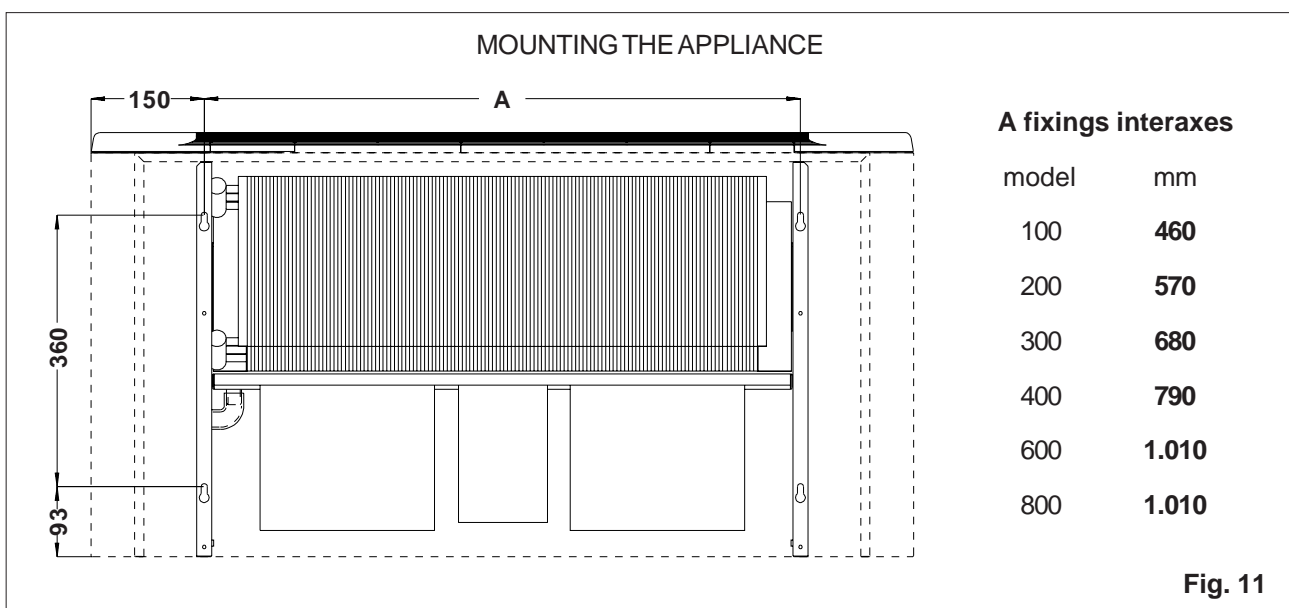
When connecting entry and exit points it is advisable to protect and insulate the pipes and any valves with anti-condensation insulation to avoid dripping during cooling cycles.

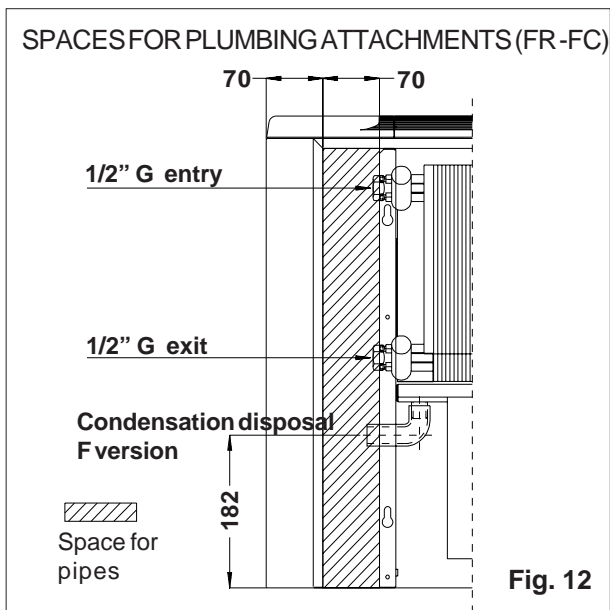
The attachments on the exchanger are female 1/2" GAS fillets with external hexagon for a size 26 spanner and are shown in *fig.12*, with indications of available space.

Make the connections using spanners and wrenches but without forcing the pipe attachment.

Once the pipes have been filled, bleed the air out by using the bleed valves on the collectors, using a flat screwdriver or a size 8 hexagonal spanner on the one in the highest position in the circuit. Close the bleed valves and check carefully that there have been no losses at the various junctions.

Connect the condensation disposal to the appropriate rubber joint (internal diameter 20mm) for vertical units FR - FC or to the

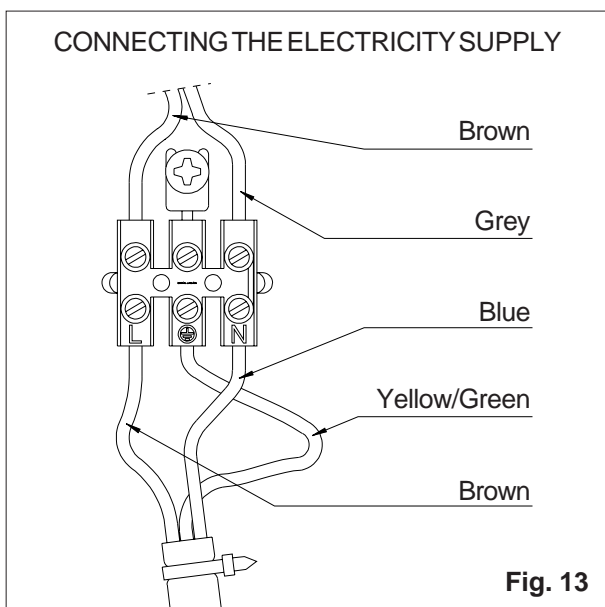




corresponding copper joint (external diameter 19mm) for horizontal FR- FCR units, ensuring that the joints are sealed with suitable tape.

For vertical versions F - FC, if the supplementary condensation tray is used, connect the disposal to the junction at the bottom of the tray itself.

Pour water slowly into the condensation tray and ensure that it runs out correctly towards the disposal without leaving traces or dripping. Check that there are no cracks in the condensation disposal pipes or incorrect sloping.



3.2.3 Electricity connection

WARNING! Turn off the power before connecting to the electricity supply and complete the plumbing connections first and ensure they are secure.

Ensure that the electricity supply is 230V - 50Hz monophasic and that there is an earth cable.

The electricity supply, where a fan heater is mounted, should be protected and controlled by an adequate load (minimum 3 mm. Contact opening) omnipolar switch and a 2A - 250V fuse.

The fan heaters come without control panels as there are various types to choose from. Carry out the mounting operations for the specific control panel according to the model chosen and the type of installation (on the side of the appliance or remote on a wall).

After mounting the control panel, connect the electricity cable to the appropriate live, neutral and earth terminals on the fan heater, inserting the cable through the cable grip and cutting the wires so that the yellow/green earth wire is slightly longer than the other two. This precaution means that if the wires are accidentally detached, the earth wire is the last to come out of the terminal (*fig. 13*).

4. STARTING UP

4.1 CHECKS

4.1.1 Before starting up the fan heater, ensure that all current rules and regulations have been followed both with regard to heat generators and to cooling systems, as well as those applying to plants, including the fan heaters themselves.

4.1.2 Ensure that the monophasic 230 V ~ 50 Hz electricity supply and the earth cable are connected to the appropriate terminals in the appliance.

4.1.3 Ensure that water is circulating correctly and bleed air using the appropriate bleed valves situated on the collectors of the heat exchange system.

4.2 SWITCHING ON

(references to control panel functions are as in *fig. 14*).

a) Preparing the fan heater;

- **version 1 controls:**

put switch (A) in the "ON" position.

If there is one (in the electronic or 2 - pipe microprocessor thermostats), put the

summer/winter switch (B) in the position appropriate for the cycle in course (towards the top = summer, towards the bottom = winter).

- Version 2 controls:

Put switch (B) in the position appropriate for the cycle in course (☼ = summer, ☷ = winter).

- b) If there is one (in the electronic or microprocessor thermostats), turn the room temperature thermostat (C) to the required temperature.
- c) Check that the fan is working properly on all three speeds by using switch (D) and taking into account any other checking instruments, for example the trip thermostat.
- d) In FR - FC versions take the transparent film off the cover. Put the cover back on by inserting the lower flanges on the attachments on the frame, adjusting the positions and fixing it with the two screws placed at the bottom of the grille flaps. Tighten the two screws which fix the cover to the side frame brackets at the bottom back of the cover itself (fig. 10) Put the air filter in position and fix it with the plastic filter grips which come with their screws in a bag in the pack.

5. COMPONENT REPLACEMENT

To replace any of the components listed below, consult an authorised Technical Service Centre. For safety and quality reasons, use only the original manufacturer's replacement parts.

WARNING! All of the following operations must be carried out with the fan heater switched off and disconnected from the electricity supply.

5.1 FAN SYSTEM

Get access to the fan system by removing the filter, cover and any panels where the heater is installed in a casing. For vertical versions F -FC take the rubber condensation disposal joint off from under the tray.

Disconnect the electrical wiring terminals from the electric motor (see electrical diagrams figs. 7-8)

Loosen the four screws which fix the system to the appliance framework at the sides.

Take out the fan system carefully holding the tray and taking care not to damage the insulating material on the side of the framework.

Before inserting the new fan system, check the state of the internal surface of the heat exchange system and if necessary clean it.

Put the new fan system in place and repeat the above operations in reverse.

5.2 HEAT EXCHANGE SYSTEM

Gain access to the interior of the fan heater by removing the filter, cover and any panelling in the case of installation in casing.

In horizontal versions FR - FCR, detach the condensation disposal joint from the tray and take off the tray itself by undoing the four screws which fix it to the framework.

Close the locks on the hydraulic attachments or in some way separate the fan heater from the rest of the system. Disconnect the hydraulic attachments from the heat exchanger using spanners or wrenches and loosen the four screws which fix it to the framework at the sides. Loosen as much as possible the four screws which hold the fan system too, so that the exchanger can be extracted without damaging the insulation material.

Gently push open the sides of the framework and extract the exchanger, rotating it so that the pinions connecting it to the framework also come out.

To insert and connect the new exchanger, repeat the above operations in reverse.

SECTION C - USER INSTRUCTION AND MAINTENANCE MANUAL

6. ATTENTION

6.1 INSTRUCTIONS AND GUARANTEE

For any future reference or consultation, this manual should be kept along with the certificate of guarantee. Do not remove for any reason whatsoever, the identifying label inside the appliance as the references written on it are necessary in the case of any repairs.

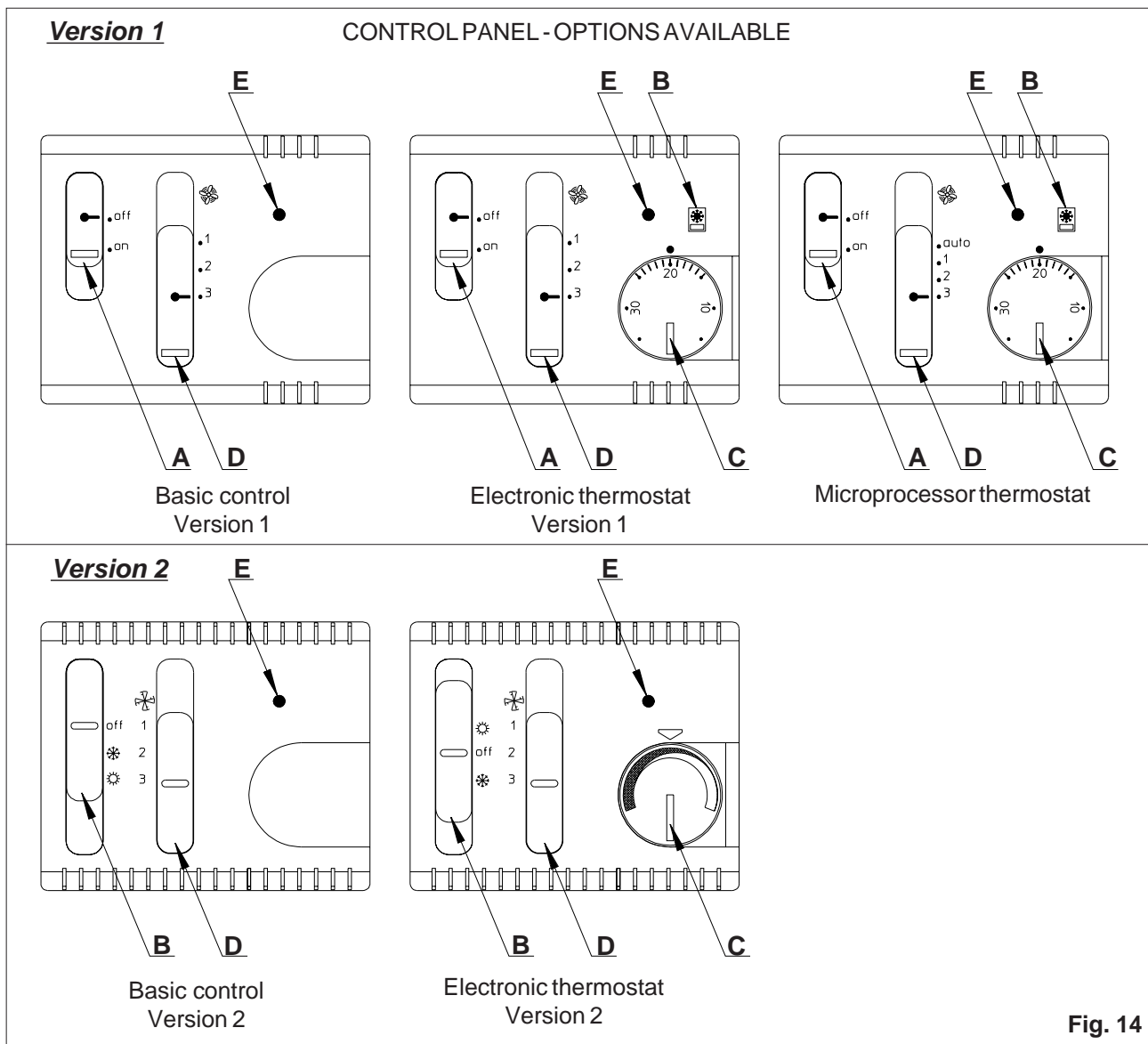
6.2 RECOMMENDATIONS - IMPROPER USE

WARNING! To ensure correct and safe use of the fan heater:

- do not use the heater for any purpose other than that for which it was designed
- do not lean on, jump over or sit on the

appliance

- do not leave objects, containers or glasses containing liquid on the air outlet grille
- do not cover the heater with curtains or any objects which could partially obstruct the intake and/or outlet of air
- do not put clothes, cloths or anything to dry on the heater grille. As well as obstructing the passage of air, any dripping inside the appliance could cause electric shock.
- do not remove the cover, the plastic grille or the panels of the appliance. Inside them are moving parts under electrical tension and/or at very high temperatures. Do not put your hands or other objects near to



those parts.

- do not remove the filter without first disconnecting the electricity supply and allowing the internal parts to cool.
- in places where it is advisable to block access to the control panel (public places, schools etc.), the flaps in version F (vertical with cover) can be blocked using the screws and screw covers provided.

7. STARTING UP

7.1 CHECKS

Before starting up the fan heater, make sure the installer has fully completed all the necessary installation procedures.

7.2 SWITCHING ON

7.2.1 (references to control panel functions refer to fig. 14)

- a) check that the electricity supply is properly connected and proceed as follows:

- **Version 1 controls**

Turn switch (A) to the "ON" position.

If there is one (on the electronic or microprocessor thermostats) put the summer/winter switch (B) in the positions suitable for the cycle in course (pointing up = summer, down = winter).

- **Version 2 controls**

Turn switch (B) to the position suitable for the cycle in course (☀ = summer, ☁ = winter).

- b) If there is one (on the electronic or microprocessor thermostats), turn the air temperature thermostat (C) to the temperature required. The indicator light (E) will show the function according to the characteristics of the different control panels.
- c) Select the fan speed using (D). If there is a trip thermostat (optional extra), the fan will start up only if the internal water temperature in the exchanger is higher than a pre-determined level. In this case, wait until the system is ready.
- e) Consult the specific instructions for the actual control panel in use to see any additional characteristics and likewise for any optional accessories which have been installed.

7.3 SWITCHING OFF

7.3.1 7.3.1 When turning off the fan heater, it is not necessary to touch the temperature control if there is one, but to proceed as follows:

- **Version 1 controls**

Turn switch (A) to "OFF"

- **Version 2 controls**

Turn switch (B) to "OFF"

7.3.2 To turn off the heater for a prolonged period:

- a) Stop the heat generator or cooling system in the plant according to the specific instructions.
- b) According to the control panel version in use, turn switch (A) or (B) to the "OFF" position.
- c) Disconnect the electric supply from the heater switch.
- d) When the system is not used during periods when there are low outside temperatures, ensure there is no risk of pipes freezing up by consulting the installer.

8. MAINTENANCE

8.1 NORMAL MAINTENANCE PROCEDURES FOR THE USER

WARNING! Any procedure which is not explicitly mentioned in this chapter should be carried out by specialised personnel.

8.1.1 Cleaning external parts

The external parts of the heater should be cleaned at least every two months, always after disconnecting the electricity supply. Use a damp cloth and remove any dust from the air outlet with a brush. **WARNING! Do not use water sprays to clean the appliance.**

Check that the fan is working well and that air is coming out of the air outlet grille correctly.

8.1.2 Cleaning the filter

The air filter should be cleaned before every operational season, or, if the fan heater is in a dusty environment, at least once a month.

WARNING! Always disconnect the heater from the electricity supply and allow the fan motor to cool before proceeding to remove the filter.

The following instructions relate to F - FR versions with covers. For encased versions with their appropriate panelling, refer to the system used by the planner and/or installer.

Loosen and extract the filter by turning the fixing screws on the plastic filter holders and turning them outwards.

Clean the filter, preferably with compressed air, by blowing in the opposite direction from the intake, or use a vacuum cleaner. If necessary,

wash the filter under running water and wait for it to dry completely before re-insertion.

If the filter material starts to show signs of wear after a few periodic cleanings, it should be replaced to ensure fully effective functioning. **Do not throw the old filter away carelessly, but dispose of it in an appropriate rubbish container.**

Re-insert the filter ensuring that it is correctly fixed using the holders.

WARNING! Never use the fan heater without the filter in place as moving parts or parts under tension and/or at high temperature would be accessible, especially to children! There would also be less protection against dust both for the fan and for the heat exchanger with a resulting loss of efficiency in the appliance.

8.2 PERIODIC CHECKS ON THE FAN HEATER

In order to reduce possible problems to the minimum and to keep the fan heater in perfect working order, thus ensuring maximum efficiency at the lowest costs, **it is advisable to have a general check carried out by a specialist at the start of every season of functioning.** This check should include cleaning the heat exchange system, the fan, the filter and the condensation tray. The latter should be thoroughly cleaned to avoid formation of mould or other bacteria where there is stagnant water.

8.3 POSSIBLE PROBLEMS

Any repair operations should be carried out by qualified personnel.

In the case of breakdown, contact the nearest Service Centre. The name can be obtained directly from Accorroni S.r.l - Numero Verde 800-017089.

Before seeking assistance, ensure that:

- a) the electricity supply is correctly connected;
- b) the heat generator, cooling system and regulatory controls in the plant are all working normally;
- c) any controls on the appliance (air temperature thermostat, trip thermostat, etc.) are working normally;
- d) there are no obstructions to either air intake or outlet flow.

DECLARATION OF CONFORMITY

Manufacturer: ACCORRONI S.r.l.
Address: 60027 Osimo (AN) - Via Pignocco, 25
Tel. 071/723991 - Fax 071/7133153
Appliances: Fan Heaters - units for temperature control
Series/Types: FR - FC - FCO - FCR
Models: 100 - 200 - 300 - 400 - 600 - 800

With reference to the above appliances, Accorroni S.r.l.

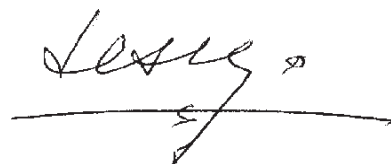
DECLARES

that these products

- conform to the 98/37EEC directive regarding machinery
- and also conform to the following directives: EEC/89/336 for electromagnetic compatibility, EEC73/23 for low tension and any amendments to them as in directive EEC93/68.

Osimo, January 2000

ACCORRONI S.r.l.
Legal representative
Leoni Luciano





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